

HOLGUIN, FAHAN & ASSOCIATES, INC.

ENVIRONMENTAL MANAGEMENT CONSULTANTS

July 25, 2006

Ms. Rose Scott
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3348

Subject: **SITE ASSESSMENT WORK PLAN FOR
CHEVRON PRODUCTS COMPANY SERVICE STATION #9-2959
26980 McCALL BOULEVARD, SUN CITY, CALIFORNIA
(CRWQCB-SAR CASE #083302515T)**

Dear Ms. Scott:

On behalf of Chevron Environmental Management Company (CEMC), Holguin, Fahan & Associates, Inc. (HFA) has prepared this site assessment work plan for the above-referenced site. This work plan has been prepared as requested by the CRWQCB-SAR in its letter dated April 21, 2006, in order to investigate the extent of hydrocarbons in soil and groundwater beneath the site (see Attachment 1 for the agency correspondence). A list of acronyms used in this work plan is included.

BACKGROUND

SITE LOCATION AND CONTACT PERSONS

Chevron Products Company (Chevron) Service Station #9-2959 is located at 26980 McCall Boulevard in Sun City, California. The site is located on the northwestern corner of the intersection of McCall Boulevard and Bradley Road (see Figure 1 - Site Location Map). The surrounding area consists of commercial and residential properties (see Figure 2 - Site Vicinity Map).

The responsible party contact is Mr. Mike Bauer, Chevron Environmental Management Company, 145 South State College Boulevard, #400, Brea, California, 92821-5833, (714) 671-3207. The consultant contact is Mr. James Haslett, Holguin, Fahan & Associates, Inc., 1003 East Cooley Drive, Suite 201, Colton, California, 92324, (928) 779-5447. The regulatory contact is Ms. Rose Scott, California Regional Water Quality Control Board, Santa Ana Region (8), 3737 Main Street, Suite 500, Riverside, California, 92501-3348, (951) 320-6375.

ENVIRONMENTAL SCIENTISTS GEOLOGISTS ENGINEERS
Contaminated Site Assessment • Site Remediation • Mobile Remediation • CPT Service • Groundwater Monitoring

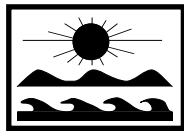
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SITE DESCRIPTION

The subject site is an active Chevron service station. Current site features include a station building, an automated car wash, eight dispenser islands, three gasoline USTs, and one diesel UST (see Figure 3 - Plot Plan).

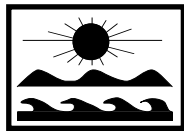
Seven LUFT sites were identified within 0.5 mile of the site (SWRCB, 2006a). Three LUFT sites with open cases are located adjacent to the site (see Figure 2). Former Mobil Service Station #18-FNW (26820 McCall Boulevard, currently a closed service station), located east of the site across Bradley Road, is an active LUFT case with the CRWQCB-SAR (Case #083302233T). The former Shell service station (26730 McCall Boulevard, currently a Valero-brand service station) located west of the site is an active LUFT case with the CRWQCB-SAR (Case #083300360T). The former Sun City Soco service station (26771 McCall Boulevard, currently redeveloped as a Walgreens Drug Store) located south of the site across McCall Boulevard is an active LUFT case with the CRWQCB-SAR (Case #083301332T). Three of the other four LUFT sites are listed as open cases.

SITE HYDROGEOLOGY

The site is located between the Perris Valley to the north and the Menifee Valley to the south at an elevation of 1,430 feet above MSL (Morton et al., 2003). The local topography is relatively flat with a slope toward the west. Surface waters in the site vicinity drain toward Railroad Canyon Reservoir, which is located 3.5 miles southwest of the site (National Geographic Holdings, Inc., 2003).

The site vicinity is underlain by Quaternary alluvial fan deposits derived from the erosion of Cretaceous rocks of the Peninsular Ranges batholith exposed to the east and west of the site (Morton et al., 2003). The alluvial deposits consist of reddish brown gravel and sand with a maximum thickness of 900 feet, underlain by granitic rocks of Cretaceous batholith and pre-Cretaceous basement rocks of the Perris Block (CDWR, 2006). Site investigations indicate clayey sand and clay from below pavement surface to 14 fbg, underlain by sand to 37 fbg, and silty and clayey sand to 60 fbg, the maximum depth investigated (SECOR International, Inc. [SECOR], 2006). This soil is interpreted as Quaternary alluvium.

The site is located within the Menifee Hydrologic Subarea of the San Jacinto Valley Hydrologic Unit (CRWQCB-SAR, 1995; SWRCB, 2006b). Site assessment activities indicate perched groundwater from 30 to 60 fbg (SECOR, 2006). Fourth quarter 2005 monitoring data for the former Mobil service station (#18-FNW) located to the east of the site indicates two water-bearing units with groundwater occurring at approximately 30 and 50 fbg in the shallower and deeper units, respectively (Kleinfelder, Inc., 2006). The groundwater flow direction for the upper



water-bearing interval generally ranged from northeast to southeast and the groundwater flow direction for the deeper water-bearing interval generally ranged from northwest to southwest. The first quarter 2006 groundwater monitoring data for the former Shell service station located west of the site indicated a single water-bearing unit with a depth to groundwater from 35.28 to 40.03 ft-TOC, a flow direction toward the west-southwest, and a gradient of 0.06 (Delta Environmental Consultants, Inc., 2005 and 2006).

Historically, groundwater in the San Jacinto groundwater basin was of good quality with beneficial use for domestic, irrigation, and industrial purposes; however, water quality assessments conducted in 2002 have indicated elevated levels of nitrate-nitrogen and TDS throughout most of the basin (CDWR, 2006). Domestic water for the Sun City area consists of surface waters from northern California and treated groundwater. According to the water purveyor, Eastern Municipal Water District, no groundwater production wells are located within 1 mile of the site (Mora, 2006).

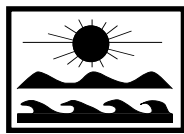
UST SYSTEM HISTORY

The site was first developed as a gasoline service station in 1965 with three gasoline USTs, one used-oil UST, and associated piping and dispenser islands (SECOR, 2006). A second generation of tanks included three gasoline USTs and one diesel UST that were installed in 1982 and removed in July of 1994, and one used-oil UST (removed in April 1988) (Environmental Science and Engineering, Inc. [ESE], 1994). Both sets of former fuel USTs were located in the southwestern portion of the site (see Figure 3). The current fueling system includes one 12,000-gallon gasoline UST, two 10,000-gallon gasoline USTs, and one 10,000-gallon diesel UST, all located to the north of the station building.

PREVIOUS WORK

Site assessment activities conducted from 1988 to 2006 have included drilling 20 soil borings, installation of 1 groundwater monitoring well (Well A), and installation of 2 vadose zone wells (Groundwater Technology, Inc., 1988; ESE, 1995; MACTEC Environmental Engineering and Consulting, 2003; SECOR, 2006). The groundwater well was installed at the location of the former used-oil USTs and was found to be dry after construction (current status is unknown). The vadose zone wells were abandoned in April 1996 (ESE, 1996).

The maximum concentrations of TPH as gasoline and TPH as diesel in soil were 0.3 and 2,700 mg/kg, respectively, and the maximum concentrations of benzene and MTBE in soil were 0.062 and 0.020 mg/kg, respectively (see Figure 3, and Attachment 2 for the historical data) (SECOR, 2006; ESE, 1995). Maximum hydrocarbon concentrations were identified in soil samples collected from the 2006 assessment with the exception of the maximum benzene



concentration, which was identified in a soil sample collected in the vicinity of the southwestern dispenser island (soil boring B-2 at 35 fbg) during a 1995 investigation. Based on the assessment data, hydrocarbon-containing soil has been identified in the vicinity of the former used-oil UST location to less than 35 fbg, and in the vicinity of the southwestern dispenser island to at least 35 fbg. The lateral extent of adsorbed-phase hydrocarbons is undefined.

The maximum concentrations of TPH as gasoline, TPH as diesel, and MTBE in groundwater were 710, 5,100, and 42 $\mu\text{g/l}$, respectively (see Attachment 2) (SECOR, 2006). Benzene concentrations in groundwater were not measured above the laboratory reporting limit. The extent of dissolved-phase hydrocarbons is undefined.

PROPOSED WORK

RATIONALE FOR PROPOSED WORK

Previous investigations have indicated adsorbed- and dissolved-phase hydrocarbons beneath the site. The CRWQCB-SAR directed CEMC to conduct a site assessment to delineate the extent of hydrocarbons detected during previous investigations (see Attachment 1).

DESCRIPTION OF WORK TO BE PERFORMED

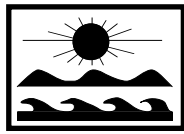
Pre-Field Activities

Prior to performing any subsurface work, HFA will:

- review as-built drawings for the site;
- perform a pre-drilling site visit to investigate and mark all proposed drilling locations;
- order a utility markout from Underground Service Alert of Southern California; and
- conduct a geophysical investigation to identify on-site subsurface utilities and structures.

Soil Assessment

Prior to drilling, all exploratory locations will be cleared of subsurface lines and structures using air knife and vacuum digging techniques to a diameter larger than the down-hole tools and 8 feet in depth (see Attachment 3 for the soil boring procedures). In order to verify the presence of multiple water-bearing units, four CPT soundings are proposed. The CPT soundings will collect continuous and detailed soil type and pore pressure data that will be used to characterize the water-bearing strata and confining layers, if any, beneath the site.



Following completion of the CPT soundings and analysis of the data, four groundwater monitoring wells will be installed. The total depth of the wells will be determined based on the results obtained from the CPT soundings (see Figure 4 - Proposed CPT Sounding and Groundwater Monitoring Well Locations). If two water-bearing units are identified, cluster wells will be completed at each proposed location (see Attachment 4 for the proposed groundwater monitoring well construction details).

Soil samples will be collected at 5-foot intervals from 5 fbg to the total boring depth. Additional soil samples may be collected, based on field observations of lithology change or evidence of hydrocarbons. The soil samples will be screened in the field with a PID and logged under the supervision of a State of California professional geologist. The soil samples will be chilled to a temperature of 4°C and transported under chain of custody to a California State-certified laboratory, where select samples will be analyzed for TPH as diesel by EPA Method 8015B (M) and for TPH as gasoline, BTEX, MTBE, TBA, TAME, DIPE, ETBE, and ethanol by EPA Method 8260B.

Groundwater Assessment

The soundings will be completed as groundwater monitoring wells using 4-inch-diameter PVC casing screened within the water-bearing unit or units. No screened intervals will be placed across confining layers (see Attachment 3 for the procedures, and Attachment 4). The monitoring wells will be properly developed and surveyed in accordance with the requirements of AB2886. If possible, the well elevations will be surveyed relative to the same benchmark used by ExxonMobil Oil Corporation, for possible future coordinated sampling.

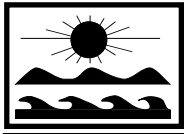
The groundwater monitoring wells will be purged and sampled in accordance with CRWQCB-SAR requirements (see Attachment 5 for the procedures). The groundwater samples will be submitted to a California State-certified laboratory, where they will be analyzed for TPH as diesel by EPA Method 8015B (M) and for TPH as gasoline, BTEX, MTBE, TBA, TAME, DIPE, ETBE, and ethanol by EPA Method 8260B.

WASTE DISPOSAL PROCEDURES

Soil cuttings and decontamination water will be placed in 55-gallon, DOT-approved drums, pending proper disposal upon receipt of laboratory analytical results.

WORK SCHEDULE

Upon approval of this work plan by the CRWQCB-SAR, the required permits will be obtained. Work will begin within 8 weeks of receipt of all permits. The CRWQCB-SAR will be notified at least 72 hours prior to performing field activities or as specified in the work plan approval letter. A site assessment report will be submitted to the CRWQCB-SAR approximately 12 weeks after the



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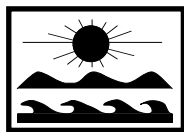
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completion of field activities. Soil analytical data and a copy of the site assessment report will be electronically submitted to the GeoTracker information system in accordance with AB2886 requirements.

All work will be conducted under the supervision of a professional geologist or civil engineer, and will be accomplished in accordance with all regulatory requirements, as defined by the SWRCB LUFT field manual.

SITE SAFETY PLAN

A worker health and safety plan developed by HFA's industrial hygienist for UST site investigations is included as Attachment 6. Procedures for conducting the proposed work are outlined in this plan, and site-specific information is provided on the cover page and job safety analysis.



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Holguin, Fahan & Associates, Inc. trusts that this site assessment work plan meets the requirements of the California Regional Water Quality Control Board, Santa Ana Region (8). If you have any questions or require additional information, please contact Mr. James M. Haslett at (928) 779-5447 or James_Haslett@hfa.com.

Respectfully submitted,

Todd G. McFarland, PG
Associate Geologist
Holguin, Fahan & Associates, Inc.

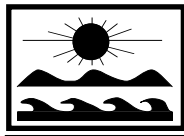
James M. Haslett, PG, REA
Senior Geologist
Holguin, Fahan & Associates, Inc.

TGM/JMH:amh:mgh:jep

Enclosures: Figure 1 - Site Location Map
Figure 2 - Site Vicinity Map
Figure 3 - Plot Plan
Figure 4 - Proposed CPT Sounding and Groundwater Monitoring Well Locations
List of Acronyms
Attachment 1 - Agency Correspondence
Attachment 2 - Historical Site Data
Attachment 3 - Soil Boring, Direct-Push Sampling, and Well Construction
Procedures
Attachment 4 - Proposed Groundwater Monitoring Well Construction Details
Attachment 5 - Groundwater Monitoring, Sampling, and Sample Management
Procedures
Attachment 6 - Worker Health and Safety Plan

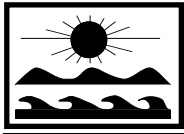
cc: Mr. Mike Bauer, CEMC
Ms. Linda Shurlow, County of Riverside Department of Environmental Health (Indio office)





REFERENCES

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- California Regional Water Quality Control Board, Santa Ana Region (8), 1995, Water Quality Control Plan (Basin Plan), Resolution No. 94-1, January 24, 1995.
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- MACTEC Environmental Engineering and Consulting, 2003, Baseline Assessment, Chevron Station No. 9-2959, 26980 McCall Boulevard, Sun City, California, July 22, 2003.
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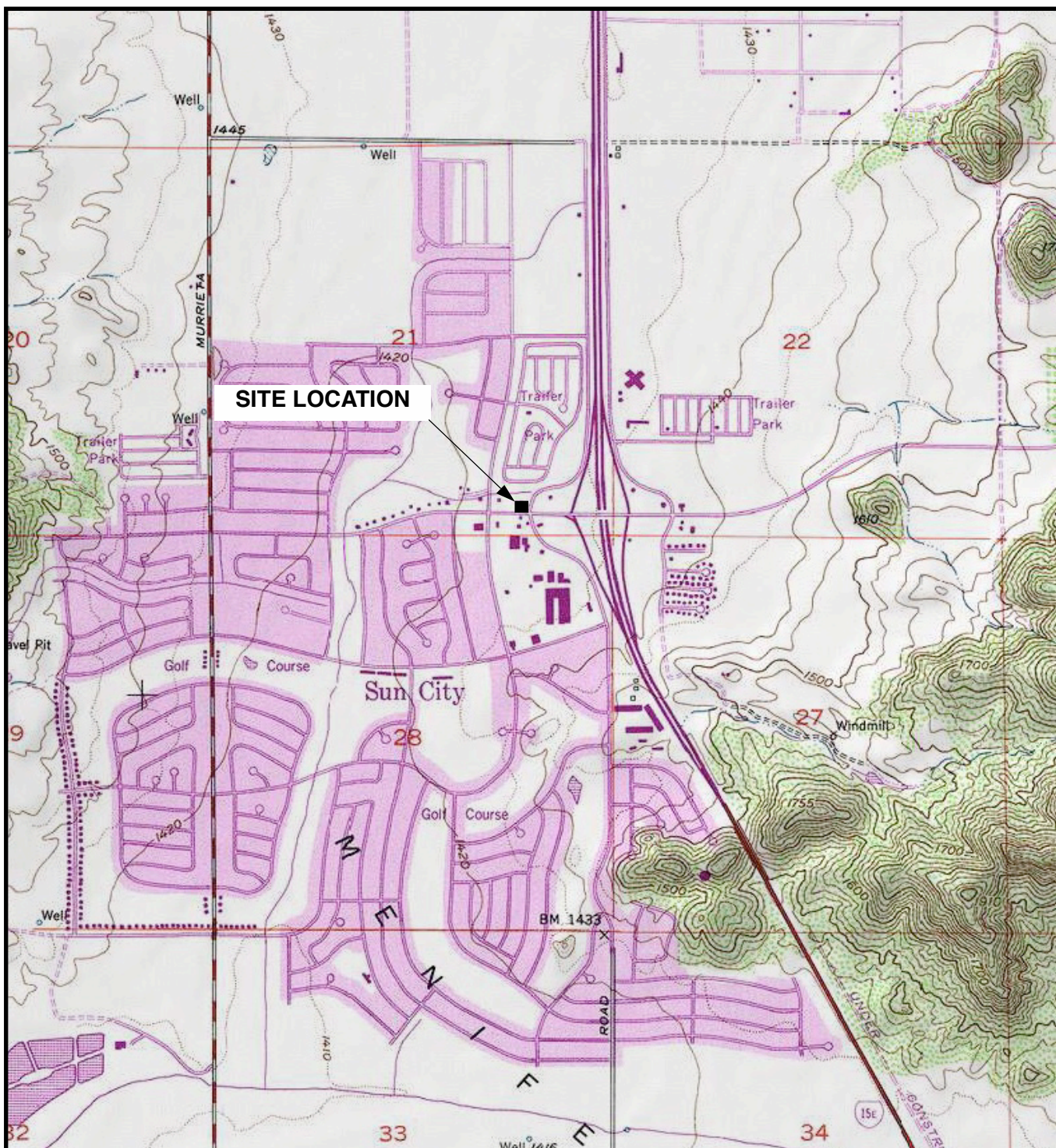
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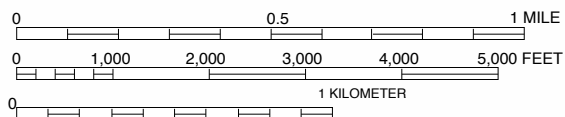
Ms. Rose Scott
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<http://www.geotracker.swrcb.ca.gov/>, cited May 30, 2006.

State Water Resources Control Board, 2006b, GeoTracker watershed report,
http://www.geotracker.swrcb.ca.gov/reports/public/watershed_report.asp, cited
May 31, 2006.



LEGEND



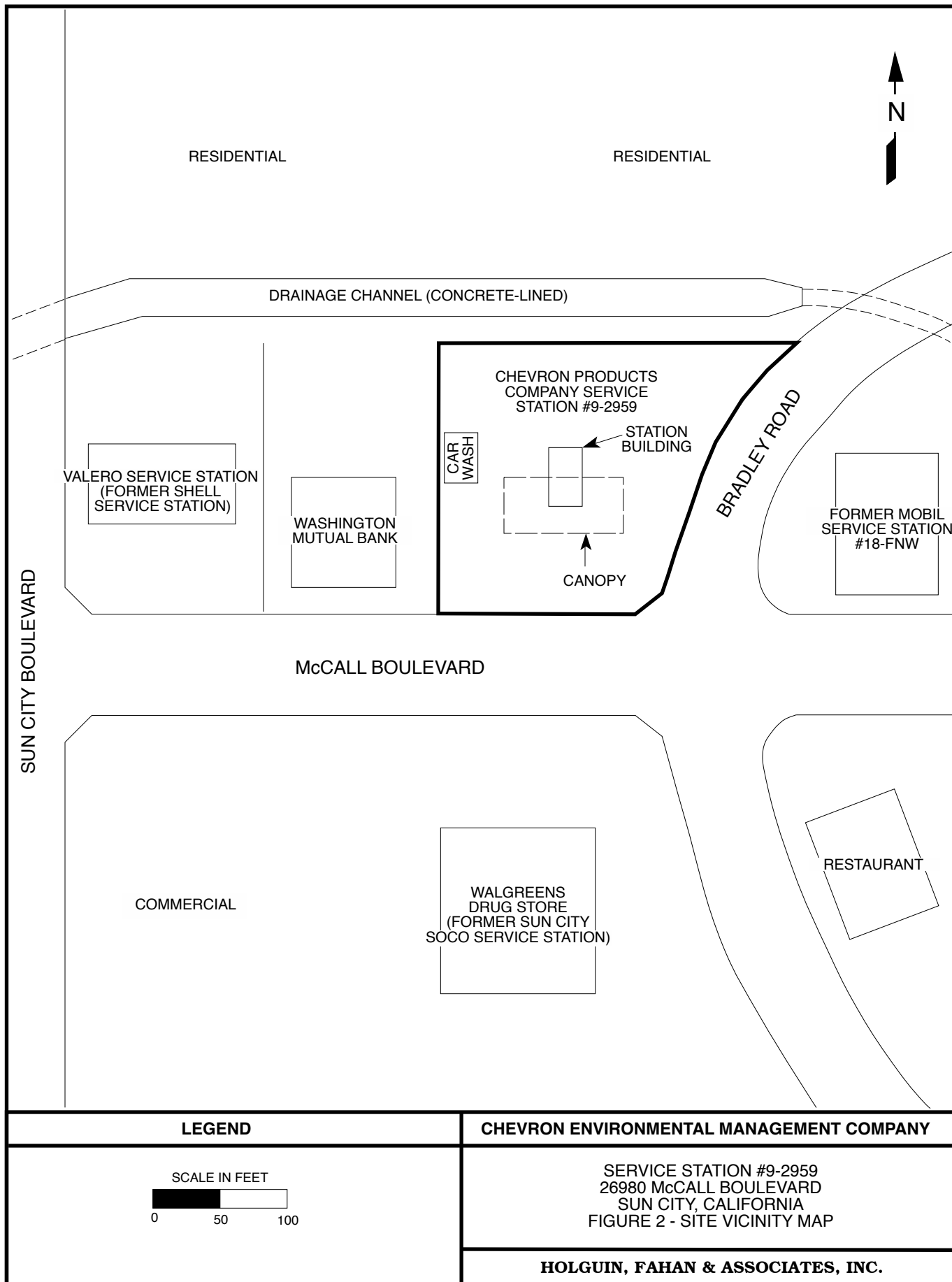
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY

SERVICE STATION #9-2959
26980 McCALL BOULEVARD
SUN CITY, CALIFORNIA
FIGURE 1 - SITE LOCATION MAP

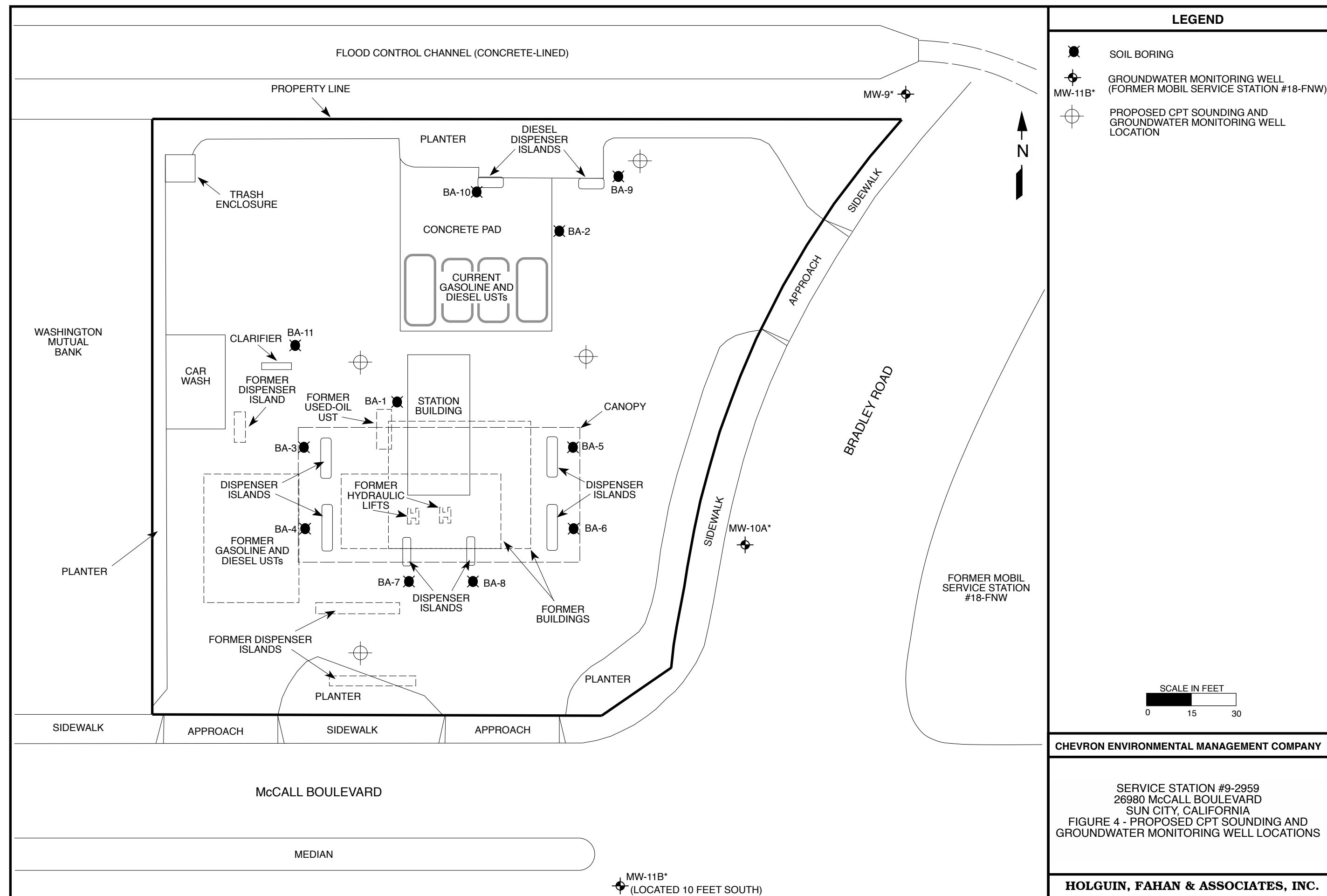
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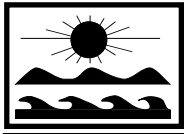
BASE MAP FROM TOPOI ©2000 NATIONAL GEOGRAPHIC HOLDINGS

REVISION DATE: JULY 3, 2006: AMH



REVISION DATE: JULY 5, 2006: AMH



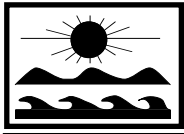


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LIST OF ACRONYMS

AB2886	California State Assembly Bill 2886
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CDWR	California Department of Water Resources
CPT	cone penetrometer testing
CRWQCB-SAR	California Regional Water Quality Control Board, Santa Ana Region (8)
DIPE	diisopropyl ether
DOT	Department of Transportation
EPA	Environmental Protection Agency
ETBE	ethyl tertiary butyl ether
fbg	feet below grade
ft-TOC	feet below top of casing
LUFT	leaking underground fuel tank
mg/kg	milligrams per kilogram
MSL	mean sea level
MTBE	methyl tertiary butyl ether
No.	number
PID	photoionization detector
PVC	polyvinyl chloride
SWRCB	State Water Resources Control Board
TAME	tertiary amyl methyl ether
TBA	tertiary butyl alcohol
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
UST	underground storage tank
$\mu\text{g/l}$	micrograms per liter
$^{\circ}\text{C}$	degrees Celsius



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ATTACHMENT 1.

AGENCY CORRESPONDENCE



California Regional Water Quality Control Board

Santa Ana Region



Alan C. Lloyd, Ph.D.
Agency Secretary

3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (951) 782-4130 • FAX (951) 781-6288 • TDD (951) 782-3221
www.waterboards.ca.gov/santaana

Arnold Schwarzenegger
Governor

April 21, 2006

Certified Mail
Return Receipt Requested

Mr. Mike Bauer, Environmental Project Manager
Chevron Environmental Management Company
145 S. State College Blvd., Suite 400
Brea, California 92821

SUBJECT: NOTIFICATION TO INITIATE CORRECTIVE ACTION
CHEVRON NO. 9-2959
26980 McCALL BLVD., SUN CITY, UST CASE NO. 083302515T

Dear Mr. Bauer:

We have reviewed the *Baseline Site Assessment Report* dated February 8, 2006. This report was prepared by your consultant, SECOR International Inc., prior to a proposed property transaction at the subject property. Petroleum hydrocarbons were detected in grab groundwater samples collected at depths of 30, 45 and 60 feet below ground surface during the investigation. Based on our understanding of local hydrologic conditions and the results of the Baseline Assessment, it appears that more than one water-bearing zone beneath the site have been affected by the release of petroleum hydrocarbons at this station. The highest concentrations of total petroleum hydrocarbons as diesel fuel (5,100 micrograms per liter [$\mu\text{g/l}$]) and methyl tertiary butyl ether (MtBE; 42 $\mu\text{g/l}$) were detected at the water sample collected at a depth of 45 feet. This depth corresponds to the water-bearing zone referred to as the "deep aquifer" by two other consultants reporting for adjacent stations.

Riverside County previously issued a case closure for the subject site on October 24, 1995. However, in light of this new evidence, Regional Board staff is retracting the decision to close this Chevron case. The following information gathered from the closed file also supports this decision: soil at the site was not tested for MtBE prior to closure, groundwater beneath the site was never investigated, and the status of well A in the waste-oil tank area is unknown.

According to our records, the firm you represent has been identified as the responsible party for this case. Therefore, we direct you to initiate corrective action, as specified in the California Code of Regulations (CCR), Title 23, Division 3, Chapter 16, California Underground Storage Tank Regulations.

Please submit a site assessment workplan including proposed investigative actions and the schedule for their completion. Please contact me at (951) 320-6375 if you have any questions.

Sincerely,

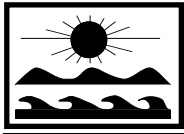
Rose Scott
Engineering Geologist, UST Section

cc: County of Riverside, Ms. Linda Shurlow

California Environmental Protection Agency



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ATTACHMENT 2.

HISTORICAL SITE DATA

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
FOR TPH and BTEX COMPOUNDS
Chevron Service Station
No. 9-2959
26980 McCall Boulevard
Sun City, California

Sample Identification	Sample Depth (feet)	Sampling Date	Feature Assessed	TPH - GRO (µg/kg)	TPH - GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Total Xylenes (µg/kg)
				EPA 8260B	EPA 8015M			EPA 8260B			
BA-1-S-20	20	12/14/05	Current Fuel USTs/Former Used Oil UST	ND<44	NA	2,700	NA	ND<0.5	ND<1	ND<1	ND<1
BA-1-S-35	35	12/14/05	Current Fuel USTs/Former Used Oil UST	ND<44	NA	ND<10	NA	ND<0.5	ND<1	ND<1	ND<1
BA-2-S-20	20	12/15/05	Current Fuel USTs	ND<44	NA	ND<12	NA	ND<0.5	ND<1	ND<1	ND<1
BA-2-S-30	30	12/15/05	Current Fuel USTs	ND<44	NA	ND<12	NA	ND<0.5	ND<1	ND<1	ND<1
BA-3-S-20	20	12/15/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-3-S-30	30	12/16/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-4-S-25	25	12/16/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-4-S-30	30	12/16/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-5-S-25	25	12/19/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-5-S-30	30	12/19/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-6-S-10	10	12/19/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-6-S-30	30	12/19/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-7-S-35	35	12/14/05	Current Gasoline Dispenser Island	220	NA	NA	NA	6	ND<1	19	9
BA-7-S-60	60	12/14/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-8-S-20	20	12/19/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-8-S-30	30	12/19/05	Current Gasoline Dispenser Island	ND<44	NA	NA	NA	ND<0.5	ND<1	ND<1	ND<1
BA-9-S-20	20	12/15/05	Current Diesel Dispenser Island	NA	NA	ND<10	NA	NA	NA	NA	NA
BA-9-S-45	45	12/15/05	Current Diesel Dispenser Island	NA	NA	ND<10	NA	NA	NA	NA	NA
BA-10-S-20	20	12/16/05	Current Diesel Dispenser Island	NA	NA	ND<12	NA	NA	NA	NA	NA
BA-10-S-30	30	12/16/05	Current Diesel Dispenser Island	NA	NA	ND<12	NA	NA	NA	NA	NA
BA-11-S-15	15	12/16/05	Current Wastewater Clarifier	NA	0.2	ND<4.0	ND<4.0	NA	NA	NA	NA
BA-11-S-30	30	12/16/05	Current Wastewater Clarifier	NA	0.3	ND<7.0	ND<7.0	NA	NA	NA	NA

Bold = Detectable Concentration
 NA = Not Analyzed
 ND = Not Detected Above Laboratory Reporting Limits
 mg/kg = milligrams per kilogram
 µg/kg = micrograms per kilogram

TPH = Total Petroleum Hydrocarbons
 GRO = Gasoline Range Organics (C6 - C12)
 DRO = Diesel Range Organics (C13 - C22)
 ORO = Oil Range Organics (C23 - C40)
 UST = Underground Storage Tank

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
FOR GASOLINE OXYGENATES
Chevron Service Station
No. 9-2959
26980 McCall Boulevard,
Sun City, California

Sample Identification	Sample Depth (feet)	Sampling Date	Feature Assessed	Ethanol (µg/kg)	DIPE (µg/kg)	ETBE (µg/kg)	MTBE (µg/kg)	TAME (µg/kg)	TBA (µg/kg)
				EPA 8260B					
BA-1-S-20	20	12/14/05	Current Fuel USTs/Former Used Oil UST	ND<99	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-1-S-35	35	12/14/05	Current Fuel USTs/Former Used Oil UST	ND<100	ND<1	ND<1	20	ND<1	ND<20
BA-2-S-20	20	12/15/05	Current Fuel USTs	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-2-S-30	30	12/15/05	Current Fuel USTs	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-3-S-20	20	12/15/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-3-S-30	30	12/16/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-4-S-25	25	12/16/05	Current Gasoline Dispenser Island	ND<99	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-4-S-30	30	12/16/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-5-S-25	25	12/19/05	Current Gasoline Dispenser Island	ND<99	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-5-S-30	30	12/19/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-6-S-10	10	12/19/05	Current Gasoline Dispenser Island	ND<99	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-6-S-30	30	12/19/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-7-S-35	35	12/14/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	1	ND<1	ND<20
BA-7-S-60	60	12/14/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-8-S-20	20	12/19/05	Current Gasoline Dispenser Island	ND<100	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-8-S-30	30	12/19/05	Current Gasoline Dispenser Island	ND<99	ND<1	ND<1	ND<0.5	ND<1	ND<20
BA-9-S-20	20	12/15/05	Current Diesel Dispenser Island	NA	NA	NA	NA	NA	NA
BA-9-S-45	45	12/15/05	Current Diesel Dispenser Island	NA	NA	NA	NA	NA	NA
BA-10-S-20	20	12/16/05	Current Diesel Dispenser Island	NA	NA	NA	NA	NA	NA
BA-10-S-30	30	12/16/05	Current Diesel Dispenser Island	NA	NA	NA	NA	NA	NA
BA-11-S-15	15	12/16/05	Current Wastewater Clarifier	ND<300	ND<5	ND<5	ND<5	ND<5	ND<100
BA-11-S-30	30	12/16/05	Current Wastewater Clarifier	NA	NA	NA	NA	NA	NA

Bold = Detectable Concentration

NA = Not Analyzed

ND = Not Detected Above Laboratory Reporting Limits

µg/kg = micrograms per kilogram

DIPE = Di-isopropyl ether

TAME = Tert-amyl methyl ether

ETBE = Ethyl tertiary-butyl ether

TBA = Tertiary-butanol

MTBE = Methyl-tert-butyl-ether

UST - Underground Storage Tank

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS
FOR METALS and VOCs
Chevron Service Station
No. 9-2959
26980 McCall Boulevard
Sun City, CA

Metals	Concentration (mg/kg) Sample BA-1-S-20'	Concentration (mg/kg) Sample BA-7-S-35'
Antimony	ND<0.804	NA
Arsenic	0.732	NA
Barium	94.5	NA
Beryllium	0.234	NA
Cadmium	0.383	NA
Chromium	5.37	NA
Cobalt	2.72	NA
Copper	20.3	NA
Lead	3.74	3.34
Mercury	ND<0.0026	NA
Molybdenum	ND<0.402	NA
Nickel	3.07	NA
Selenium	ND<0.941	NA
Silver	ND<0.186	NA
Thallium	ND<0.941	NA
Vanadium	18.7	NA
Zinc	34.1	NA
Reported VOCs	Concentration (mg/kg) Sample BA-1-20'	Concentration (mg/kg) Sample BA-7-35'
Acetone	0.021	NA
Tetrachloroethene	0.004	NA
Naphthalene	0.003	NA

Bold = Detectable Concentration

ND = Not Detected Above Laboratory Reporting Limits

NA = Not Analyzed

mg/kg = milligrams per kilogram

Title 22 Metals analysis by EPA Test 6010B/7471A

Volatile organic compound (VOC) analysis by EPA Test 8260B

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
FOR TPH and BTEX COMPOUNDS
Chevron Service Station
No. 9-2959
26980 McCall Boulevard
Sun City, California

Sample Identification	Sampling Date	Feature Assessed	TPH - GRO (µg/l)	TPH-DRO (µg/l)	TPH-ORO (µg/l)	TPH - GRO (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)
			EPA 8015 M			EPA 8260B				
BA-1-W	12/14/05	Current Fuel USTs/Former Used Oil UST	NA	NA	NA	ND<22	ND<0.5	ND<0.7	ND<0.8	ND<0.8
BA-7-W	12/14/05	Current Gasoline Dispenser Island	NA	NA	NA	200	ND<0.5	ND<0.7	6	9
BA-9-W	12/15/05	Current Diesel Dispenser Island	NA	5,100	NA	710	ND<0.5	ND<0.7	21	23

Bold = Detectable Concentration

NA = Not Analyzed

ND = Not Detected Above Laboratory Reporting Limits

µg/l = micrograms per liter

mg/l = milligrams per liter

TPH = Total Petroleum Hydrocarbons

GRO = Gasoline Range Organics (C6 - C12)

DRO = Diesel Range Organics (C13 - C22)

ORO = Oil Range Organics (C23 - C40)

UST = Underground Storage Tank

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
FOR GASOLINE OXYGENATES
Chevron Service Station
No. 9-2959
26980 McCall Boulevard
Sun City, California

Sample Identification	Sampling Date	Feature Assessed	Ethanol (µg/l)	DIPE (µg/l)	ETBE (µg/l)	MTBE (µg/l)	TAME (µg/l)	TBA (µg/l)
			EPA 8260B					
BA - 1- W	12/14/05	Current Fuel USTs/Former Used Oil UST	ND<50	ND<0.8	ND<0.8	23	ND<0.8	ND<10
BA - 7 - W	12/14/05	Current Gasoline Dispenser Island	ND<50	ND<0.8	ND<0.8	ND<0.5	ND<0.8	ND<10
BA - 9 - W	12/15/05	Current Diesel Dispenser Island	ND<50	ND<0.8	ND<0.8	42	11	ND<10

Bold = Detectable Concentration

NA = Not Analyzed

ND = Not Detected Above Laboratory Reporting Limits

µg/l = micrograms per liter

DIPE = Di-isopropyl ether

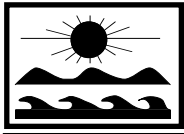
ETBE = Ethyl tertiary-butyl ether

MTBE = Methyl-tert-butyl-ether

TAME = Tert-amyl methyl ether

TBA = Tertiary-butanol

UST = Underground Storage Tank



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ATTACHMENT 3.

SOIL BORING, DIRECT-PUSH SAMPLING, AND WELL CONSTRUCTION PROCEDURES

SOIL BORING, DIRECT-PUSH SAMPLING, AND WELL CONSTRUCTION PROCEDURES

PRE-DRILLING PROTOCOL

Planning

Prior to the start of drilling, necessary permits, site access agreements, and/or encroachment permits are obtained. As-built drawings are obtained if possible. At least 2 weeks in advance of drilling, notifications are made to the property owner, client representative, on-site facility manager, regulatory agency, and/or other appropriate parties. At least 48 hours prior to drilling, Underground Service Alert of Southern California, Arizona Blue Stake, or an equivalent utility locating service is notified. A geophysical survey may be conducted to locate subsurface utilities. Site plans and/or as-built drawings are compared to actual conditions observed at the site. The property owner/retailer is interviewed to gain information about locations of former UST systems (including dispensers, product lines, and vent lines). A visual inspection is made of the locations of the existing UST system, and scars and patches in pavement are noted. The critical zone, which is defined as 10 feet from any part of the UST system as well as the area between the dispensers and USTs, is identified, and any proposed drilling locations within the critical zone may be subject to special hole clearance techniques. Drilling locations within the critical zone are avoided if possible.

A site-specific, worker health and safety plan, including a JSA and traffic control plan for all soil sampling locations for the site, is available at all times during drilling activities. Prior to commencing field activities, a health and safety meeting is held among all on-site personnel involved in the operations, including subcontractors and visitors, and is documented with a health and safety meeting sign-in form. The emergency shut-off switch for the service station is located prior to the start of the drilling activities. A fire extinguisher and "No Smoking" signs (and Proposition 65 signs in California) are present at the site prior to the start of the drilling activities.

In order to determine the natural subsurface conditions, better recognize fill conditions, and prevent cross contamination, the first sampling location is generally located the furthest from any suspected underground improvement.

When drilling a soil boring in asphalt or concrete, a minimum 10-inch round cut is made. When advancing a direct-push location, a minimum 3.5-inch round cut is made.

Hole Clearance

The minimum hole clearance depths are 5 feet below grade (fbg) outside the critical zone and 8 fbg within the critical zone and are conducted as follows:

- 0 to 5 fbg: The area to be cleared exceeds the diameter of the largest tool to be advanced and is large enough to allow for visual inspection of any obstructions encountered. The first 1 to 2 feet of soil or fill is removed by hand digging, then the borehole is probed using a blunt-tipped tool to ensure that no obstructions exist anywhere near the potential path of the drill auger or push-type sampler. Probing is extended laterally as far as possible. Hand augering or post-hole digging then proceeds, but only to the depth that has been probed. If subsurface characteristics prohibit effective probing, a hand auger is carefully advanced past the point of probing. In this case, sufficient hand augering or post-hole digging is performed to remove all the soil in the area to be delineated. For soil borings located outside of the critical zone, an attempt should be made to probe an additional 3 feet.
- 5 to 8 fbg: For the soil borings located inside the critical zone, probing and handclearing an additional 3 feet is performed. If probing is met with refusal, then trained personnel advance a hand auger without excessive force.

Alternate or additional subsurface clearance procedures may also be employed, as required by clients, permit conditions, and/or anticipated subsurface conditions (for example, near major utility corridors or in hard soils). Alternate clearance techniques may include performing a geophysical investigation or using an air knife or water knife. If subsurface conditions prevent adequate subsurface clearance, the field activities cease until the client gives written approval of a procedure for continuation.

When pea gravel, fill sand, or other non-indigenous material is encountered, the sampling location is abandoned unless the absence of subsurface facilities can be demonstrated and client approval to proceed is obtained. If hole clearance activities are conducted prior to the actual day of drilling, the holes are covered with plates and/or backfilled.

If any portion of the UST system is encountered, or if there is any possibility that it has been encountered, the work ceases, and the client is notified immediately. If there is reason to believe that the product system has been damaged, the emergency shut-off switch is activated. The client will decide if additional uncovering by hand is required. If it is confirmed that the UST system has been encountered, tightness tests are performed as required by the client. The hole is backfilled only with client approval.

SOIL SAMPLING PROCEDURES

Soil samples are collected using one of the following methods:

- Manual drilling: Manual drilling utilizes a hand auger. Soil samples are collected with a drive sampler outfitted with steel or brass sleeves. The specific equipment used is noted on a log of exploratory boring.
- Truck-mounted, powered drilling: Truck-mounted, powered drilling utilizes hollow-stem flight auger drilling, air rotary drilling, percussion hammer drilling, or similar technologies. Soil samples are collected in steel or brass sleeves with a California-modified, split-spoon sampler or, for specific projects, a continuous sampler. The specific equipment used is noted on a log of exploratory boring.
- Direct push sampling: Direct push sampling utilizes Geoprobos, cone penetrometer testing rigs, or similar technologies. Soil samples are collected with a drive sampler outfitted with steel, acetate or brass sleeves. The specific equipment used is noted on a log of soil sample descriptions.

Before each soil sampling episode, the sampling equipment is decontaminated using a non-phosphate soap and water wash, and two tap-water rinses. The drill augers or direct-push rods are decontaminated with a steam cleaner between each soil boring (truck-mounted rigs).

Soil samples that are collected in sample sleeves are covered with aluminum foil or Teflon tape followed by plastic caps. If EPA Method 5035 is required, then 5 to 20 grams of soil is extracted from the sample and placed in methanol-preserved containers supplied by the laboratory, or subsamples are collected using Encore samplers. During the sampling process, soil samples and cuttings are field screened for VOCs using a photoionization detector calibrated to an isobutylene or hexane standard. The calibration information is recorded on an equipment calibration log. Any soil staining or discoloration is visually identified. Soils are classified according to the Unified Soil Classification System. Specific geologic and hydrogeologic information collected includes grading, plasticity, density, stiffness, mineral composition, moisture content, soil structure, grain size, degree of rounding, and other features that could affect contaminant transport. All data are recorded on a soil boring log under the supervision of a geologist registered in the state in which the site is located. The samples are labeled, sealed, recorded on a chain-of-custody record, and chilled to 4°C in accordance with the procedures outlined in the California State Water Resources Control Board's Leaking Underground Fuel Tank Field Manual or the Arizona Department of Environmental Quality's (ADEQ's) Leaking Underground Storage Tank Site Characterization Manual. Sample preservation, handling, and transportation procedures are consistent with Holguin, Fahan & Associates, Inc.'s quality assurance/quality control procedures. The samples are transported in a chilled container to a state-certified, hazardous waste testing laboratory.

Cuttings from the soil borings are stored in 55-gallon, Department of Transportation (DOT) approved drums, roll-off bins, or other appropriate containers, as approved by the client. Each container is labeled as waste material or non-hazardous waste, with the number of the soil boring(s) from which the waste was derived, the date the waste was generated, the generator name, and other pertinent information. The drums are stored at the site of generation, or at another location approved by the client until sample laboratory analytical results are obtained, at which time the soil is disposed of appropriately.

A soil boring log is completed for each soil sampling location and includes the following minimum information:

- date of drilling;
- project name and location;
- soil sample names and depths;
- soil descriptions and classifications;
- standard penetration counts (rigs);
- photoionization detector readings;
- drilling equipment;
- soil boring diameter;
- sampling equipment;
- depth to groundwater in soil boring;
- name of person performing logging;
- name of supervising registered geologist; and
- name of drilling company (rigs and direct push).

HYDROPUNCH GROUNDWATER SAMPLING PROCEDURES

Hydropunch sampling of groundwater is designed for collecting discrete, one-time samples of groundwater for analysis during the drilling or direct-push operations. The Hydropunch sampler consists of a 5-foot long, 1.5-inch diameter screen sheathed by a 2-inch diameter, steel barrel. A disposable point is connected to the bottom of the screen. The Hydropunch assembly is lowered through the hollow-stem auger and driven into the undisturbed soils below the base of the hole, or is pushed into the soil using a direct push rig. The outer sheath is then retracted to expose the screen. A bailer is then lowered into the Hydropunch assembly and retrieves a sample of the groundwater within the assembly.

The extracted groundwater is collected in chilled, 40-milliliter, volatile organic analysis vials having Teflon-lined caps, or other appropriate containers as required by the respective analytical method. For organic compound analyses, hydrochloric acid preservative is added to all containers by the laboratory to lower sample pH. Samples are held at 4°C while in the field

and in transit to the laboratory. Analysis is performed by a state-certified, hazardous waste testing laboratory.

Documentation requirements include:

- sample identification number;
- borehole identification number;
- time and date of sample collection;
- depth at which Hydropunch sample was collected;
- name of person collecting sample;
- number and types of sample containers; and
- type of preservative used, if any.

BOREHOLE COMPLETION PROCEDURES

All sampling locations are either properly abandoned or completed as a well.

Abandonment

Each borehole/sample location that is not completed as a well is backfilled with bentonite grout, neat cement, concrete, or bentonite chips with a permeability less than that of the surrounding soils, and/or soil cuttings, depending on local regulatory requirements or client instructions. Grout is placed by the tremie method. Backfilling is performed carefully to avoid bridging. The type of backfill material is noted on the log.

Well Installation

Wells are designed according to applicable state and local regulations as well as project needs. Details of the well design and construction are recorded on the log and include the following minimum information (in addition to the items noted above for soil borings):

- detailed drawing of well;
- type of well (groundwater, vadose, or air sparging);
- casing diameter and material;
- screen slot size;
- well depth and screen length (± 1 foot);
- filter pack material, size, and placement depths;
- annular seal material and placement depths; and
- surface seal design/construction.

Groundwater monitoring wells are generally designed with 30 feet of slotted casing that crosses the water table, unless site conditions, project needs, or local regulations dictate a different well design. Vadose wells are designed with slotted casing appropriate for the project needs, e.g.

slotted in hydrocarbon-containing intervals for vapor extraction. Air sparging wells are typically designed with 5 feet of slotted casing placed 15 feet below the water table. The sand pack is placed at least two feet above the top of the screen, and at least 3 feet of low permeability seal material is placed between the sand pack and the surface seal, unless shallow groundwater conditions exist (less than 5 fbg). The sand pack and low permeability seal material are placed in the annular space from the bottom up using the tremie method.

When drilling in asphalt, a 24-inch round cut is made for the well pad. When drilling on concrete, a 2 x 2-foot square or 24-inch circle is sawcut. The well cover is traffic-rated and has a white lid with a black triangle painted on it (3 inches per side) or a black lid with a white triangle (3 inches per side). The well pad is completed using concrete of a color matching the existing surface. The well number is labeled on the outside of the well box/pad and the inside of the well box. The number on the outside is painted on with a stencil, stamped, or attached to the well with a metal plate. The number on the inside is written on the well cap with waterproof ink. The casing has a notch or indication on its north side indicating a unique measuring/surveying point. Well casings are capped with a locking or slip well cap.

Well Development

Well development is conducted by the use of surge blocks, bailers, pumps, or other appropriate methods in accordance with the requirements of the California Department of Water Resources Bulletin #74-81 dated December 1981, or ASTM International 4448-85a (as required by the ADEQ). Only formation water is used for surging the well. Well development continues until non-turbid groundwater is produced or turbidity stabilizes. The method of development and the volume of groundwater produced is recorded in the field log. All purged groundwater is held on-site, or at another location approved by the client, in sealed, 55-gallon DOT approved drums or other appropriate containers pending transport to an approved recycling facility.

Well Elevation Survey

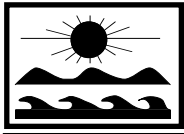
The elevation of the north side of the top of well casing (or other appropriate reference point from which the depth to groundwater can be measured) is surveyed to an accuracy of ± 0.01 foot. All measurements are reproduced to assure validity. Surveying may be performed by a state-licensed surveyor if required by state or local regulations. In the state of California, wells are surveyed in accordance with AB2886.

DATA REDUCTION

The data compiled from the soil borings are summarized and analyzed. A narrative summary of the soil characteristics is also presented. The logs are checked for the following information:

- correlation of stratigraphic units among sampling locations;
- identification of zones of potentially high hydraulic conductivity;
- identification of the confining layer;
- indication of unusual/unpredicted geologic features (fault zones, fracture traces, facies changes, solution channels, buried stream deposits, cross-cutting structures, pinchout zones, etc.); and
- continuity of petrographic features such as sorting, grain-size distribution, cementation, etc.

Soil boring/well locations are plotted on a properly scaled map. If appropriate, soil stratigraphy of the site is presented in a scaled cross section. Specific features that may impact contaminant migration, e.g., fault zones or impermeable layers, are discussed in narrative form and supplemented with graphical presentations as deemed appropriate.



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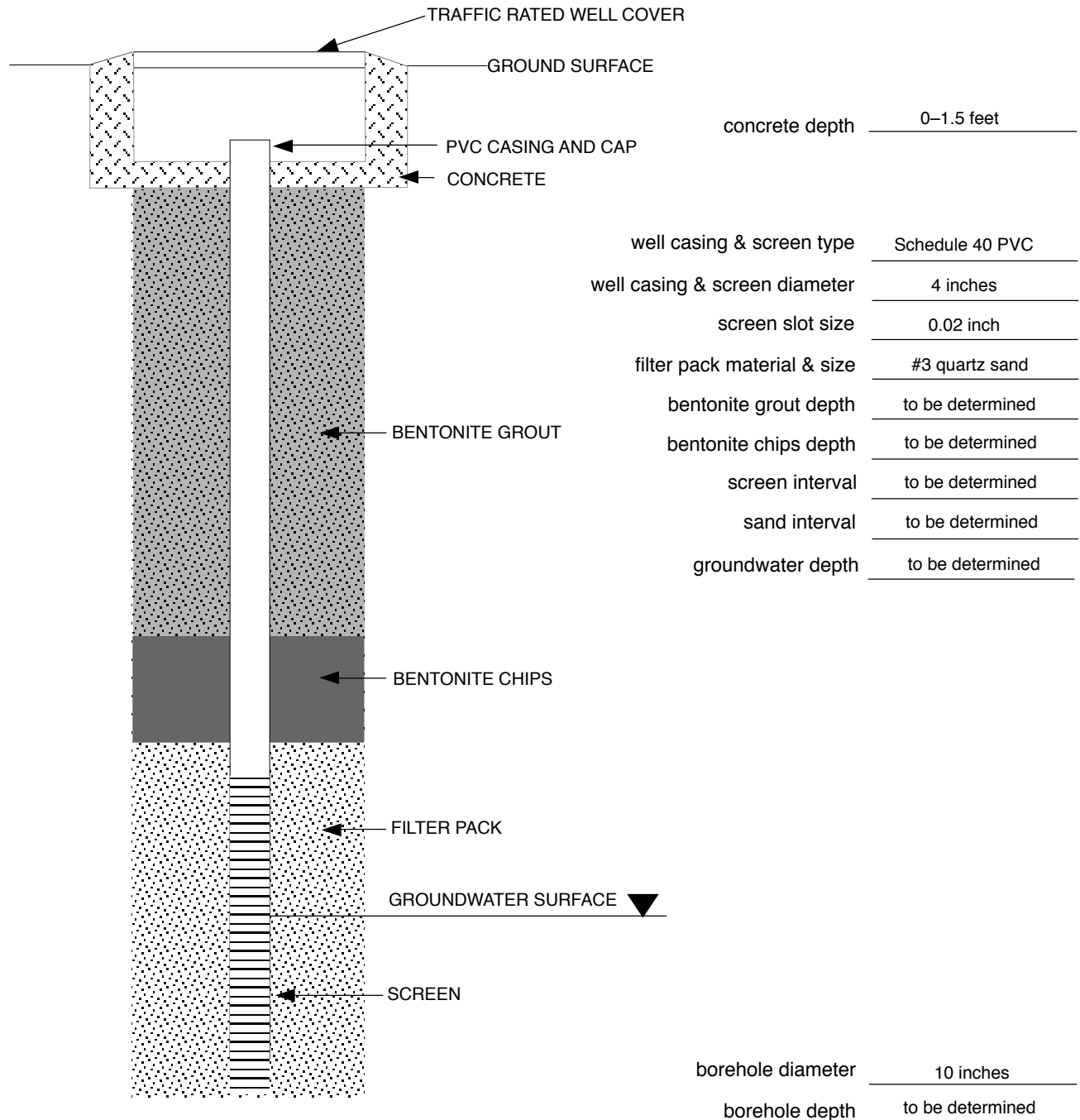
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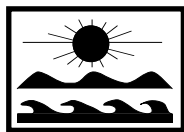
ATTACHMENT 4.

PROPOSED GROUNDWATER MONITORING WELL CONSTRUCTION DETAILS

GROUNDWATER MONITORING WELL CONSTRUCTION DETAILS

Client Name	Chevron Environmental Management Company	Well No. <u>Proposed</u>
Project Name	Service Station #9-2959	
Site Address	26980 McCall Boulevard Sun City, California	
Supervised by		





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ATTACHMENT 5.

GROUNDWATER MONITORING, SAMPLING, AND SAMPLE MANAGEMENT PROCEDURES

GROUNDWATER MONITORING, SAMPLING, AND SAMPLE MANAGEMENT PROCEDURES

NOTIFICATIONS

Prior to performing any field work, the client, regulatory agency, and property owner/manager with jurisdiction over the subject site are notified. Notifications are made a minimum of 48 hours prior to sampling, or as required by the client or regulator. E-mail notifications are used whenever possible.

WATER LEVEL MEASUREMENTS

Prior to performing purge or no-purge sampling, water level measurements are collected according to the following procedures.

- All wells are checked for phase-separated hydrocarbons (PSH) with a clear plastic or Teflon bailer or oil/water interface meter.
- To avoid cross contamination, water levels are measured starting with the historically "cleanest" wells and proceeding to the historically "dirtiest."
- Water levels within each well are measured to an accuracy of ± 0.01 foot using an electronic measuring device and are referenced to the surveyed datum (well cover or top of casing). When measuring to top of casing, measurements are made to the notched (or otherwise marked) point on the casing. If no marking is visible, the measurement is made to the northern side of the casing. Measurements include the depth to groundwater, depth to PSH if applicable, and depth to bottom of well.
- If possible, all wells are gauged within a short time interval on the same day to obtain accurate measurements of the potentiometric surface.
- All measurements are reproduced to assure validity, and measuring equipment is decontaminated between wells.

PHASE-SEPARATED HYDROCARBONS

If PSH is encountered, its thickness and depth are measured using one of the following methods.

- An electronic oil/water interface meter is used to measure the depths to the top of the PSH and to the top of the water; and/or

- An electronic water level meter is used to measure the depth to the top of the water and a clear bailer is used to measure the PSH thickness.

The potentiometric surface elevation is calculated as:

$$\text{TOC} - \text{DTW} + 0.74\text{PT}$$

Where TOC = top-of-casing elevation, DTW = depth to water (interface), and PT = PSH thickness.

If PSH thickness is less than 0.02 foot, and purging of the well is planned prior to sample collection, the well is purged and sampled in accordance with the sample collection section of this standard operating procedure (SOP). If the PSH thickness is 0.02 foot or greater, the PSH is bailed from the well, and left on-site in a labeled and sealed container. Generally, no sample is collected for analysis from wells having a PSH thickness of greater than 0.02 foot. If a groundwater sample is collected to meet technical or regulatory objectives for the project, the sample is collected from the bottom of a disposable bailer lowered below the PSH-water interface. Wells containing PSH should not be purged, even if the other wells are purged.

NO-PURGE SAMPLING

Well purging is not conducted prior to sampling if purging is not needed to meet technical and/or regulatory project requirements. Following collection of water level measurements, the wells are sampled according to the protocol in the sample collection section of this document.

PURGING PROCEDURES

Well purging is conducted prior to sampling if purging is needed to meet technical and/or regulatory project requirements. Well purging may be performed using any of the following methodologies: dedicated pump, peristaltic pump with dedicated stinger, vacuum truck with dedicated stinger, electric submersible pump, bailer, bladder pump, or hand pump. The goal of purging wells is to remove stagnant water from the well and allow formation water to enter the well to be collected for analysis. If the wells are completed in low-yielding formations and are pumped dry, the purging may be discontinued. Purge rates should be low enough to prevent excessive agitation and/or prevent water from cascading into the well.

Dedicated Pump Purging

If permanent pumps are installed in the wells for groundwater remediation, the pumps are operated for at least 24 hours prior to sampling. If a dedicated sampling port is in place to collect samples of the pumped water from an individual well, then the port is used to collect the

sample. VOA vials are filled completely so that no headspace or air bubbles are present within the vial. Care is taken to minimize air exposure and turbulence. The vials are not overfilled, which could cause preservative to be lost. If no sampling port is in place, the pump is turned off and the wells are sampled according to the protocol in the sample collection section of this document.

Purging Methods

If dedicated pumps are not present at the site, then purging is accomplished by either standard purging or low-flow purging (also known as “micropurging”).

Standard Purging

Standard purging methods involve removal of a set number of casing volumes of water and/or removal of sufficient water to stabilize indicator parameters such as temperature, pH, and conductivity (see below for measurement procedures). The water is removed using a vacuum or peristaltic pump, submersible electric pump, bailer, hand pump, or bladder pump, as appropriate for the site conditions. The specific purging method and equipment are recorded in the field log. A surge block may be used if the well screen becomes bridged with sediment or the produced groundwater is overly turbid.

Low-Flow Purging

Low-flow purging involves purging at sufficiently low rates of withdrawal that drawdown, aeration, and turbulence are minimal. Groundwater is removed using a submersible pump, bladder pump, or centrifugal pump. Water is purged from the well at flow rates that are generally in the range of 0.05 to 0.5 gallons per minute, but this may be lower or higher in wells of lower or higher productivity.

The pump intake is positioned in the mid-point of the saturated screened interval, but a different position may be used based on hydrogeologic conditions and/or analyte properties. For petroleum hydrocarbon and oxygenate sample analysis, the pump intake is placed in the upper third of the saturated screened interval. The type of pump, flow rate, total volume of water removed, and depth of the pump intake are noted on the field log. Low-flow purging continues until temperature, pH, and conductivity stabilize (see below for measurement procedures). Then, a water sample is collected from the purge water effluent stream or from a bailer. VOA vials are filled completely so that no headspace or air bubbles are present within the vial. Care is taken to minimize air exposure and turbulence. The vials are not overfilled, which could cause preservative to be lost.

Monitoring During Purging

During the purging process, groundwater is monitored for temperature, pH, and conductivity using a standard field meter. Dissolved oxygen, turbidity, and other parameters may be collected for project-specific needs. These water quality parameters are recorded on a field log. Purging continues until a minimum number of well volumes (3) are removed and/or temperature, pH, and conductivity stabilize. For standard purging, water quality parameters are measured in bailer samples or from the pump effluent. For low-flow purging, water quality parameters are continuously monitored during purging using a water quality meter housed within a Solinst flow-through cell, and stabilization generally occurs after about one casing volume is purged from a well.

Purge Water Storage and Disposal

If active groundwater treatment is occurring at the site, purge water may be disposed of through the treatment system. Otherwise, purge water is either stored on-site in Department of Transportation-approved 55-gallon drums, or transported offsite as non-hazardous waste for disposal or recycling at an approved facility.

SAMPLE COLLECTION PROCEDURES

For dedicated pumps with sampling ports and for low-flow purging, samples are collected directly from the purge water stream, as described above. For standard purging and dedicated pumps without a sampling port, sampling is performed after the water level in the well recharges to at least 80 percent of hydrostatic. Then, groundwater samples are collected using the following procedures.

- A clean Teflon bailer is lowered and partially submerged into the well water to collect a groundwater sample.
- If PSH is present in the sample bailer, PSH thickness is recorded on the field log, and no sample is collected for laboratory analysis.
- For volatile organic analyses, groundwater samples are collected in chilled, 40-milliliter, VOA vials with Teflon-lined caps. A pre-measured quantity of hydrochloric acid preservative is added to all vials by the laboratory prior to receipt by HFA. Samples are held at 4°C or less while in the field and in transit to the laboratory. Other appropriate containers, preservatives, and holding protocols are used for non-volatile analyses.
- VOA vials are filled completely so that no headspace or air bubbles are present within the vial. Care is taken so that the vials are not overfilled, and the preservative is not lost.

- Sample containers are immediately labeled and sealed after collection. For VOA vials, the label is placed to overlap the edge of the cap as a custody seal, unless a separate custody seal is being used.
- Samples are stored in a cooler while on-site and in transport to the laboratory or office. The cooler has sufficient ice to maintain appropriate temperature prior to collecting samples. The VOA vials are kept chilled both prior to and after filling. Hot or warm containers are not used when volatile compounds are the target analytes.

DECONTAMINATION PROCEDURES

Decontamination of monitoring and sampling equipment is performed prior to all monitoring and sampling activities. Decontamination procedures consist of a three-step process. The initial decontamination is performed using a non-phosphate soap, such as Simple Green or Alconox, in tap water in a 5-gallon bucket. A soft-bristle bottlebrush is used to thoroughly clean the inside and outside of the equipment. The brush is used in the first bucket only; it does not travel from bucket to bucket with the equipment. This procedure minimizes any transport of the contaminants, which should stay in the first bucket. The equipment is then rinsed in a second 5-gallon bucket of tap water, followed by a third 5-gallon bucket of tap water as a final rinse. The decontamination water is disposed of using the same procedures as the purge water.

WELL CONDITION

The condition of the well is checked during the monitoring event. The well lid and cap are secured, and any debris present in the well box is removed. If the threads of the well lid boltholes are stripped, then they should be re-tapped, to the next appropriate size, using a tap and die kit. The bolts for the well lid should be replaced with the corresponding re-tapped thread size. Any other deficiencies with the well box and pad that cannot be fixed during the monitoring event are noted in the log. The log is given to the project manager for correction of the deficiencies at a future date.

QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

A trip blank, temperature blank, and/or other blanks are taken for quality assurance/quality control (QA/QC) purposes.

- A trip blank sample is kept with any samples being analyzed for volatile organic compounds (VOCs). A trip blank is a sample of clean water that is supplied by the laboratory and is transported to and from the field and to the laboratory with the field samples. The designation "QCTIPBK" or "QCTB" is used for the sample name on the field

label. Samplers record on the chain-of-custody (COC) the date that the trip blank is taken to the field for sampling, not the date that the trip blank was prepared by the laboratory. One trip blank per cooler per day is collected. Unused trip blanks are stored in a cooler dedicated to this purpose. The trip blank cooler is not refrigerated, but is kept in a clean location away from possible VOC contaminants.

- Temperature blank sample containers are supplied by the laboratory and kept in a cooler used to transport samples. The temperature blank is placed in the cooler prior to going to the field and is kept there until the cooler is delivered to the laboratory.

CHAIN OF CUSTODY

A chain of custody form is completed for each group of samples delivered to the laboratory, as follows.

- A separate COC is completed for each day of sampling. If samples are collected on separate days for the same site, a separate COC is completed for each sampling day, and the COC is always kept with the samples. If samples are shipped off-site for laboratory analysis, individual coolers with separate COCs are sent for each day/cooler shipped.
- All fields/spaces on the COC are filled out completely, and all persons having control of the samples sign the COC to show transfer of sample control between individuals. At times when the field sampler is not delivering samples directly to the laboratory, the samples may be turned over to a sample manager for shipping. In this instance, the sample manager takes custody of the samples, and both the sampler and sample manager sign and date the COC to clearly show custody transfer.
- The COC is placed inside the cooler, and a custody seal is placed on the outside of the cooler prior to shipping. The receiving laboratory indicates if the cooler was received with the custody seal intact.
- If samples are sent to the laboratory via UPS, FEDEX, etc., this fact is indicated on the COC, and the sample manager also indicates the date and time the custody seal is placed on cooler for delivery to the shipping agent (the shipping agent does not sign the COC).
- For trip blanks, the COC indicates the date the trip blank was taken to the field for sampling, not the date the trip blank was prepared by the laboratory (the latter date may appear on the VOA label).

- New electronic deliverable format (EDF) requirements of California AB2886 mandate that COCs and laboratory reports maintain consistent and unique names between sites (Global ID) and sample location/well names (Field Point ID). This information must be consistent with the initial information supplied to GeoTracker, and for each subsequent quarterly sampling event.

SAMPLE HANDLING

Refrigerator Storage and Temperature Log

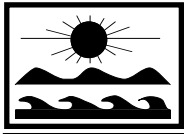
Samples may be stored in a refrigerator prior to transport to the laboratory. Refrigerator storage is maintained under the following conditions.

- Refrigerators used for sample storage are dedicated for that usage only (no food or other materials are stored in sample refrigerators).
- Refrigerators can be locked from the outside by a sample manager, and only the sample manager has access to the samples while they are in storage.
- Refrigerators are maintained at a temperature of 4°C or less, and are adjusted daily depending on thermometer readings.
- Each refrigerator contains a dedicated, reliable thermometer. The thermometer is designed for use in a refrigerator and is fixed or secured to the inside of the unit. The thermometer range is specific for measuring temperatures less than 4°C.
- A temperature log is kept on the outside of the refrigerator in a lightweight, three-ring binder, or similar logbook. Temperatures are recorded daily or when the refrigerator is open for sample management.
- Completed COCs are kept with the samples stored in the refrigerators. The COCs may be held on a clipboard outside the refrigerator, or may be placed inside the cooler if the entire cooler is placed inside the refrigerator.
- If a cooler is placed in the refrigerator, the cooler lid remains open to insure that samples are maintained at the refrigerator temperature.

Cooler Packing

The sample coolers are packed as directed by the receiving laboratory. The following cooler packing procedures are used.

- The cooler contains enough ice to maintain the required temperature.
- Water ice (not dry ice or ice packs) is used for shipping.
- The ice is placed above and below the samples in at least two sealable plastic bags. This procedure requires that the packing/divider material be removed and replaced.
- The COC is placed in the cooler in a sealed plastic bag, and the cooler lid is taped closed to secure it for transport and to minimize loss of temperature. A custody seal is placed vertically across the seam of the cooler lid.



**HOLGUIN,
FAHAN &
ASSOCIATES, INC.**

ENVIRONMENTAL MANAGEMENT CONSULTANTS

ATTACHMENT 6.

WORKER HEALTH AND SAFETY PLAN

DATE: July 25, 2006

**WORKER HEALTH AND SAFETY PLAN FOR UNDERGROUND STORAGE TANK INVESTIGATIONS
SITE-SPECIFIC INFORMATION**

Site Address: 26980 McCall Boulevard, Sun City, California
Name of Business Occupying Site: Chevron Products Company Service Station #9-2959
dba Sun City Chevron
Responsible Party Name: Chevron Environmental Management Company
Responsible Party Contact: Mr. Mike Bauer Tel. #: (714) 671-3207

Agency Contact: Ms. Rose Scott Tel. #: (951) 320-6375
(CRWQCB-SAR)

FIELD ACTIVITIES AND GOALS OF THIS INVESTIGATION:

Advance CPT soundings and drill/install groundwater monitoring wells for assessment of on-site conditions with a duration of 5 to 7 days.

KNOWN HAZARDS AT THE SITE INCLUDE:

Gasoline and diesel fuels.

KEY PERSONNEL AND RESPONSIBILITIES:

NAME	RESPONSIBILITIES
Jessica Law (909) 422-8988 ext. 14	<u>SITE SAFETY OFFICER</u> - Primarily responsible for site safety, response operations, and protection of the public. Responsible for work site inspections to identify particular hazards and define site security.
James Haslett, PG (928) 779-5447	<u>PROJECT MANAGER</u> - Primarily responsible for site characterization. The project manager delineates authority, coordinates activities and functions, and directs activities related to mitigative efforts of clean-up contractors.
Jessica Law (909) 422-8988 ext. 14	<u>SITE INVESTIGATIVE PERSONNEL</u> - Responsible for actual field work including sampling, monitoring, equipment use, and other related tasks as defined by the project manager.

ANTICIPATED WEATHER CONDITIONS FOR THIS AREA DURING THE PROJECT'S DURATION WILL BE:

Temp. range: 65-100°F Humidity: 40-80% Ambient temp.: 85°F
Potential for heat stress: High: Medium: X Low:

ANTICIPATED PROTECTION LEVEL DURING THIS PROJECT*

Level "D" *Will be upgraded or downgraded to fit situations as they arise.

EMERGENCY INFORMATION:

All emergency calls: 911
Closest hospital with emergency room: Meniffee Valley Medical Center
28400 McCall Boulevard, Sun City, California, (951) 679-8888
Map Showing Route from Site to Hospital Attached? Yes: X No:

HOLGUIN, FAHAN & ASSOCIATES, INC.
JOURNEY MANAGEMENT PLAN

SITE IDENTIFICATION: Chevron Service Station #9-2959
SITE ADDRESS: 26980 McCall Boulevard, Sun City, California
HOME OFFICE ADDRESS: 1003 East Cooley Drive, Suite 201, Colton, California
JOURNEY TRAVEL TIME (INCLUDING RUSH HOUR AND OTHER POTENTIAL DELAYS): 60 minutes
JOURNEY MANAGEMENT PLAN REVISION DATE: July 25, 2006

ROUTE: Any deviations from the route shown in the enclosed directions must be evaluated using the SPSA method prior to operating the vehicle.

JOURNEY-SPECIFIC HAZARDS:

Traffic (areas of typically heavy traffic, road construction, delays, large sporting/concert venues, etc.): On-going construction at the highway interchange at I-215 and I-60 in Riverside. Expect temporary lane markings, minor detours, and heavy traffic.

Road Conditions (paved, rough, narrow, winding, etc.): Paved highway and surface streets.

Weather (mountain passes, crossing of hot desert areas): Typically sunny or partly cloudy. Periodic seasonal rain.

Other conditions of note for this route: Highway is reduced from three to two lanes in the city of Perris.

SITE INGRESS AND EGRESS (ATTACH SITE MAP, TRAFFIC PLAN, AND/OR DIAGRAMS, IF NEEDED):

General site description (vacant, operating station, etc.): Operating Chevron service station.

If fenced, describe method of ingress (approach, initial parking, opening of gate, entering gate from initial parking area, and closing gate): None.

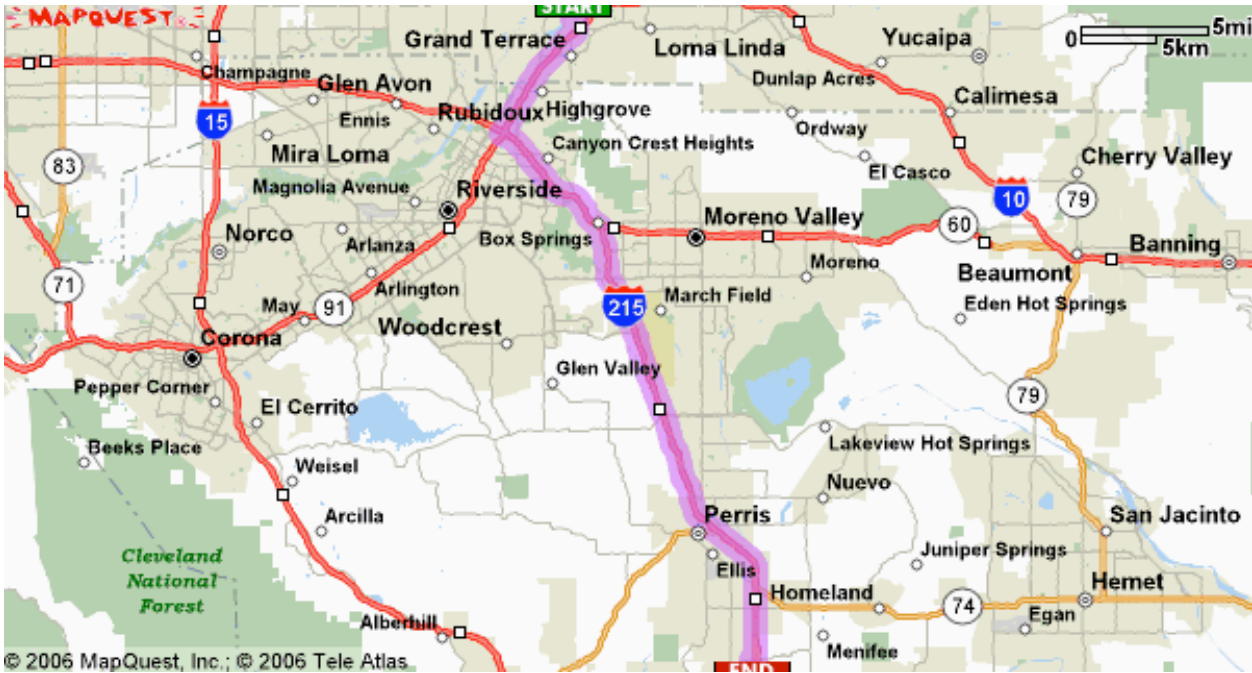
If fenced, describe method of egress (opening of gate, exiting gate, entering street, temporary parking while closing gate, closing gate, and leaving temporary parking): None.









Is traffic control required for ingress and/or egress? If so, describe. No.

Pedestrian conditions (nearby schools, on-site customers, busy downtown area, etc.): Light pedestrian traffic on sidewalks around site for surrounding retail and commercial businesses.

On-site driving conditions: Pedestrian and vehicle traffic associated with service station operations.

Parking options: Marked parking stalls around perimeter of site.



Directions		Distance
Total Est. Time: 29 minutes Total Est. Distance: 28.55 miles		
	1: Start out going EAST on E COOLEY DR toward S MT VERNON AVE.	0.1 miles
	2: Turn RIGHT onto S MT VERNON AVE.	0.4 miles
	3: Merge onto I-215 S.	4.7 miles
	4: I-215 S becomes CA-91 W.	<0.1 miles
	5: Merge onto I-215 S toward SAN DIEGO / INDIO.	22.7 miles
	6: Take the MCCALL BLVD exit toward SUN CITY.	0.3 miles
	7: Turn RIGHT onto MCCALL BLVD.	0.1 miles
	8: End at 26980 McCall Blvd Sun City, CA 92586-2228, US	
Total Est. Time: 29 minutes Total Est. Distance: 28.55 miles		

FOR EMERGENCIES CALL 911



DIRECTIONS TO NEAREST HOSPITAL:

- 1: EXIT FROM SITE ON **BRADLEY ROAD** GOING **SOUTH** (RIGHT TURN) - <0.1 MILE
- 2: TURN **LEFT** ON **MCCALL BOULEVARD** AND TRAVEL **EAST** - 1.6 MILES
- 3: END AT MENIFEE VALLEY MEDICAL CENTER, 28400 MCCALL BOULEVARD

*EMERGENCY ROOM ENTRANCE IS LOCATED OFF OF MCCALL BOULEVARD

TOTAL ESTIMATED TIME: 4 MINUTES TOTAL ESTIMATED DISTANCE: 1.7 MILES

LEGEND	CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
<p>MENIFEE VALLEY MEDICAL CENTER 28400 McCALL BOULEVARD SUN CITY, CALIFORNIA (951) 679-8888</p>	<p>SERVICE STATION #9-2959 26980 MCCALL BOULEVARD SUN CITY, CALIFORNIA HOSPITAL MAP</p>
	<p>HOLGUIN, FAHAN & ASSOCIATES, INC.</p>

WORKER HEALTH AND SAFETY PLAN FOR UNDERGROUND STORAGE TANK SITE INVESTIGATIONS CHEVRON PRODUCTS COMPANY SERVICE STATION #9-2959

This document outlines Holguin, Fahan & Associates, Inc.'s (HFA's) worker health and safety plan (HASP) for its employees to be used at Chevron Products Company Service Station #9-2959. Site-specific information has been provided in this document. Prior to the start of each day's field activities, the HASP will be reviewed by all on-site personnel at a health and safety tailgate meeting. All on-site employees, subcontractors, and regulatory agents will acknowledge that they have reviewed the HASP by signing the tailgate meeting form. Subcontractors are additionally expected to perform work under their own task-specific HASP and Job Safety Analyses (JSAs) and conduct Safe Performance Self Assessments (SPSAs). When appropriate, the Management of Change (MOC) form should be completed. If a specific person is responsible for the mitigation of any critical action(s) identified within the JSA, their name will be written next to the critical action they are responsible to mitigate. Additionally, the use of cameras or other video recording equipment must be approved by the Site Safety Officer (SSO) prior to use. Field modifications to this HASP must be approved by the client project manager (PM), HFA PM, and the HFA SSO.

This HASP was developed by HFA's industrial hygienist through consultation of the following documents:

- Occupational Safety and Health Administration (OSHA) 29 CFR 1910 – "Hazardous Waste Operations and Emergency Response, Final Ruling," March 1989;
- National Institute of Occupational Safety and Health/OSHA/United States Coast Guard/Environmental Protection Agency "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985;
- HFA's Corporate Health and Safety Program;
- ExxonMobil Oil Corporation's Operations Integrity Management System; and
- The Loss Prevention System, Inc.

This worker health and safety plan is divided into the following categories:

1. Job Hazard Assessment;
2. Exposure Monitoring Plan;
3. Personal Protective Equipment;
4. Work Zones and Security Measures;
5. Decontamination and Disposal;
6. Employee Training; and

7. Emergency Procedures.

1. JOB HAZARD ASSESSMENT

Immediate tasks at any UST site include an evaluation of any present or potential threat to worker and public safety. Questions need to be answered regarding the dangers of significant vapor exposures and potential explosion hazards.

An analysis of known and potential site-specific hazards is outlined in the JSAs (see JSA section). Before beginning any activity/task/job, or after a loss or near loss or encountering any unusual circumstances, an SPSA will be performed.

Potential Chemical Hazards

The chemical components of gasoline that are the most dangerous to site workers are gasoline, hydrocarbon-containing soil, benzene, toluene, ethylbenzene, xylene, methyl tertiary butyl ether (MTBE), and potentially, organic lead (see Exhibit 3 for the Material Safety Data Sheets). In addition, solvents such as 1,2-dichlorobenzene and 1,2-dichloroethane may be used as cleaning solutions at service stations. The primary health risks associated with each chemical are described below.

Gasoline (free-phase) – Confirmed animal carcinogen with unknown relevance to humans. A threshold limit value (TLV) (8-hour average) of 300 parts per million by volume (ppmv) and a short-term exposure limit (STEL) (15 minute average) of 500 ppmv have been assigned to gasoline (see Exhibit 3). This value was assigned based on an average of 2 percent benzene (0.5 ppmv TLV) in gasoline. Low-level inhalation exposure to gasoline can cause irritation to the eyes, nose, and respiratory system; headache; dizziness; and nausea. Contact with the skin causes irritation.

Hydrocarbon-containing soil – Generally contains less than 1 percent gasoline. A TLV of 300 ppmv has been assigned to soil containing gasoline hydrocarbons.

Benzene – Known human carcinogen. A TLV of 0.5 ppmv or 1.6 milligrams per cubic meter (mg/m^3) and an STEL of 2.5 parts per million (ppm) have been assigned to benzene. Benzene has a low odor threshold limit of 1.4 ppm. Low-level inhalation exposure to benzene can cause irritation to the eyes, nose, and respiratory system; dizziness; headache; and nausea.

Toluene – A TLV of 1,500 ppm or 187.5 mg/m^3 has been assigned to toluene. Toluene has a low odor threshold limit of 2.1 ppm. Low-level inhalation exposure to toluene can cause fatigue, weakness, confusion, and euphoria.

Ethylbenzene – A TLV of 100 ppm or 435 mg/m³ has been assigned to ethylbenzene. Ethylbenzene has a low odor threshold limit of 2 ppm. Low-level inhalation exposure to ethylbenzene can cause irritation to the eyes and mucous membranes.

Xylene – A TLV of 100 ppm or 435 mg/m³ has been assigned to xylene. No low odor threshold limit has been established for xylene. Low-level inhalation exposure to xylene can cause dizziness, headache, nausea, and drowsiness.

MTBE – Confirmed animal carcinogen with unknown relevance to humans. A TLV of 40 ppm or 144 mg/m³ has been assigned to MTBE. In laboratory animals, inhalation exposure can cause hyperactivity, coordination problems, convulsions, and unconsciousness.

Ethanol – A TLV of 1,000 ppm or 1,900 mg/m³ has been assigned to ethanol. High-level inhalation exposure can cause eye and respiratory tract irritation, fatigue, headache, and drowsiness. No reports of chronic exposure to vapors have been reported.

Tetraethyl Lead (Organic Lead) – A TLV of 0.1 mg/m³ has been assigned to tetraethyl lead. Tetraethyl lead is a colorless or red-dyed liquid at atmospheric conditions. No data are available concerning odor threshold. Acute vapor exposure can cause insomnia, delirium, coma, and skin irritation.

1,2-Dichlorobenzene – A TLV of 50 ppm or 306 mg/m³ has been assigned to 1,2-dichlorobenzene. 1,2-dichlorobenzene has a low odor threshold limit of 4.0 ppm. Acute vapor exposure can cause coughing, drowsiness, and skin irritation.

1,2-Dichloroethane – A TLV of 200 ppm has been assigned to 1,2-dichloroethane. No data are available concerning odor threshold. Acute vapor exposure can cause coughing, dizziness, drowsiness, and skin irritation.

Potential Physical Hazards

Trenching – Fuel vapor levels will be monitored using a lower explosive limit (LEL) meter or photoionization detector (PID). The presence of underground utilities and fuel facilities is also of concern, and the applicable utility markout service (Arizona Blue Stake; see attached Arizona Blue Stake Program information) will be notified in advance of any trenching work for identification of all underground structures in the immediate area.

Drilling – Fuel vapor levels will be monitored using a PID or LEL meter. The presence of underground utilities is also of concern, and the applicable utility markout service (Arizona Blue Stake) will be notified in advance of any drilling work for identification of all underground utilities in the immediate area.

Excavations – Fuel vapor levels will be monitored using a PID or LEL meter. All excavations greater than 4 feet in depth will not be entered unless the excavation is properly sloped or shored in accordance with OSHA regulations and certified by a competent person. Confined spaces are never to be entered.

Sampling – Use of personal protective equipment and decontamination procedures will minimize the potential for exposure for personnel conducting site investigation activities.

Traffic – In areas where vehicular traffic is anticipated, a traffic control plan will be developed as part of the HASP. A traffic vest will be worn, traffic control devices will be placed around the work area, and workers will face oncoming traffic, as conditions allow. The vehicle should be placed between the work area and oncoming traffic, where possible. For work in the public right-of-way, traffic control (delineators, signs, light boards, and so forth) will be setup in accordance with the Work Area Traffic Control Handbook and local agency requirements as outlined in the permit. For high-risk traffic areas, at least two workers will be present.

Heat – The effects of high temperatures will be monitored by each individual and by all coworkers at the site. If site ambient temperature exceeds 90°F and the potential for heat stress is considered to be high as indicated on the site-specific information page, the effects should be controlled through regular work breaks; wearing loose, lightweight clothing; working during cooler hours of the day; and ingestion of cool fluids (recommended 8 ounces every 20 minutes) as outlined in the American Conference of Governmental Industrial Hygienists' Guidance for heat stress conditions. Common heat disorders, symptoms, and first aid measures include the following.

- Heat cramps – Heat cramps are caused by dehydration and loss of salt. Its symptoms include spasms or cramps in the limbs and hot skin. Workers should consume fluids at frequent intervals.
- Heat exhaustion – Symptoms include thirst, headache, clammy skin, nausea, vertigo, weakness, and fainting. Clothing should be loosened, and the worker should be removed from the hot environment and given fluids and adequate rest.

- Heatstroke – Symptoms include red, dry skin; confusion; irrational behavior; lack of sweating; convulsions; and potentially loss of consciousness. Professional medical assistance should be called immediately. In the interim, the worker should be taken out of the hot environment, outer clothing should be removed, the skin should be wetted, and the worker should be given fluids.

Potential Biological Hazards

HFA's work sites are current or former service stations and terminals where gasoline and other petroleum hydrocarbons may have been released to soil and groundwater. HFA employees are potentially exposed to snakes, spiders or other insects and bugs that may be poisonous. According to Arizona Poison Control and the California Poison Control System, the following could be found on-site:

- Black Widow Spider;
- Brown Recluse Spider;
- Arizona Brown Spider;
- Jumping Spider;
- Wolf Spider;
- Yellow Sac Spider
- Tarantulas;
- Northwestern Brown Spider or Hobo Spider;
- Scorpions;
- Centipedes;
- Conenose Bugs;
- Ants;
- Bees;
- Mosquitoes;
- Rattlesnakes;
- Coral Snakes; and
- be aware of signs of rodents or rodent droppings, which may carry disease.

2. EXPOSURE MONITORING PLAN

Potential exposure hazards found at UST sites primarily include liquid gasoline or airborne vapors from leaking USTs or associated piping, containment boxes, sumps, and hydrocarbon-containing soil and groundwater.

The most dangerous airborne vapor likely to be encountered during a UST investigation is benzene. The breathing zone will be screened with a PID during surface disruption activities

every 4 hours, or every half hour upon olfactory detection. The PID will be calibrated prior to use on a daily basis to an isobutylene standard, or an LEL meter using a hexane standard. The calibration will be recorded, and a copy of the documentation will be kept with the PID and LEL. When the action level of 150 ppmv (one-half of the TLV of gasoline) is detected and sustained in the breathing zone, respiratory protection will be required using full-face or half-face respirators with organic vapor cartridges (Level C protection), and vapor suppression, ventilation, or other engineering controls may be applied.

Monitoring for combustible gases will also be performed using an LEL meter when vapor concentrations in excess of 2,000 ppmv are detected with the PID. The withdrawal level is 20 percent of the LEL for gasoline vapors, or 2,800 ppmv, in the breathing zone. If this level is exceeded, the work party will be IMMEDIATELY withdrawn from the work area.

3. PERSONAL PROTECTIVE EQUIPMENT

The level of protection during the site investigation will usually be Level D. Level D protective equipment includes: long pants, safety boots, traffic vest, hearing protection, safety glasses with side protection, gloves appropriate to the work type, and a hard hat if drilling, heavy equipment, or trenching operations are in progress. A flame-retardant suit is required if phase-separated hydrocarbons are encountered or if specified in the hot work permit. The personal protective equipment required for the work activity will be specified in the JSA.

Upgrading the protection level would be based on airborne vapor concentration equaling or exceeding the action level (150 ppmv). An upgrade to Level C protection would be required if the action level is equaled or exceeded. The equipment required for Level C would be a full-face or half-face, air purifying respirator and may include Tyvek suits with taped arm and leg seals, in addition to the Level D protective equipment. If the vapor concentrations exceed 1,000 ppmv, canister-equipped respirators will be used. If the withdrawal level is met or exceeded (20 percent of the LEL in the breathing zone), work will cease until the vapor level is measured to be below 20 percent of the LEL, and vapor suppression, ventilation, or other engineering controls will be applied.

If the OSHA Permissible Exposure Limit or a time-weighted average of 85 decibels is exceeded, or if heavy equipment (i.e., jackhammer, drill rig, backhoe) is used, hearing protection will be worn.

A fire extinguisher, first aid kit, and eyewash will be maintained on-site. Decisions for workers' safety and the personal protective equipment to be worn are based on a continual evaluation of conditions.

4. WORK ZONES AND SECURITY MEASURES

To facilitate a minimum exposure to dangerous vapors and/or physical hazards, only authorized persons will be allowed in the work zone. Work zones will be defined by the client, the general contractor, or HFA staff, who will also be responsible for maintaining security within these zones. The work zone will be delineated from the job site using traffic delineators, caution tape, and so forth. A traffic control plan delineating the work zone will be developed as part of the HASP. Only the minimum number of personnel necessary for the UST investigation will be present in the work zone. Smoking is never permitted in the work zone.

5. DECONTAMINATION AND DISPOSAL

HFA's standard operating procedures (SOPs) establish practices that minimize contact with potentially impacted materials. Decontamination procedures are used if there is suspected or known impacted equipment, supplies, instruments, or any personnel surfaces. Nitrile gloves should be worn during decontamination activities. The equipment will be decontaminated using a nonphosphate soap and water wash and two tap-water rinses. Wash water will be recycled in accordance with the appropriate regulatory procedures and HFA's SOP for soil boring, direct-push sampling, and well construction.

6. EMPLOYEE TRAINING

All applicable HFA employees working on the site will have had, at a minimum, the required 40-hour OSHA Training for Hazardous Waste Site Activities with annual 8-hour refresher training and medical surveillance exam (29 CFR 1910, 120), which includes training in the use of respirators and other personal protective equipment. Also, all HFA employees working on the site will have received either LPS or LPS awareness training. Annual individualized respirator fit testing is required of all applicable HFA employees working at the site.

Personnel in a supervisory role will have undergone an additional 8 hours of training in accordance with OSHA requirements (29 CFR 1910, 120, page 373 [4]).

7. ON-SITE EMERGENCY PROCEDURES

During the morning safety meeting, on-site personnel will select an off-site evacuation area and list it on the sign-in sheet. The designated safe area should generally be upwind of the work area and away from overhead structures. If evacuation is necessary, the air horn should be sounded and all personnel accounted for at the meeting location.

If an emergency occurs, on-site personnel will contact local emergency services by dialing 911. All work will cease, and reasonable efforts will be made to secure the work area, if it is

deemed safe to do so. The HFA field manager will be the emergency coordinator responsible for directing the response until emergency services personnel arrive. People in adjacent areas that may be affected by the emergency should be notified if deemed necessary, or instructed by emergency services personnel.

Personal Injury

Minor injuries can be treated on-site with basic first aid. However, once the project manager has been notified, the worker may be taken to an appropriate facility for additional treatment. In the event of overt personal exposure (i.e., skin contact, inhalation, or ingestion) or other situation requiring medical attention, the affected personnel will be transported to and treated at the closest hospital (see hospital map attached). In the event of a more serious injury, site personnel will contact the local emergency services by dialing 911 for assistance.

Spill

If a fuel release occurs as a result of site investigation activities, the emergency shutoff switch at active service station locations will be activated. Absorbent or other available material (i.e., bentonite, dirt, or cat litter) will be placed around the spill to prevent the substance from entering utility vaults, storm drains, or the public right-of-way. An exclusion zone will be setup around the release, and fuel vapor levels will be monitored with an LEL or PID. The local fire department and other appropriate agencies will be notified in accordance with local regulations by dialing 911. The police department will be notified as required to provide traffic control around the exclusion zone. All absorbent material will be disposed of in accordance with regulatory requirements.

Fire

If a fire occurs, and there is no potential for exposure to chemicals or a dangerous situation, site personnel will use available extinguishers to combat the fire and attempt to eliminate the source of the fire. For larger fires, site personnel should evacuate to the designated safe area, notify the local fire and police departments by dialing 911, and setup an exclusion zone around the fire.

Electrical Line

If a power line is contacted, assume it is live and evacuate the area if safe to do so. Turn off the power at control panel if able, and immediately contact the local electrical utility company to shut off the power. Call 911 to notify the fire department and request medical help if there are injuries. If personnel are in a vehicle or equipment that is in contact with the power line, do not exit the vehicle until instructed by rescue workers. Do not touch any line, or any object or

person in contact with the line. Establish an exclusion zone around the line, and call 911 for the police to assist with traffic control as necessary.

If the equipment must be exited, jump clear, and do not step off. Never touch a grounded surface and the equipment in contact with the line at the same time. Land with both feet together and shuffle away from the area for at least 20 feet with small steps, keeping both feet on the ground.

In case of electrical fire, call 911 to notify the fire department immediately and use a dry chemical extinguisher. Do not use water on the fire.

Gas Line

Signs of a gas leak include dirt or water being ejected into the air, roaring or hissing coming from the line, the odor of natural gas, or fire coming from the ground or appearing to burn above the ground.

If a gas leak is suspected, turn off any motorized equipment if safe to do so, and evacuate to the designated safe area. Immediately contact the local gas company to shut off the leak. Call 911 to notify the fire department and request medical help if there are injuries. Establish an exclusion zone around the line, and call 911 for the police to assist with traffic control as necessary.

Natural Disaster

In the event of a natural disaster, workers will shut off all equipment if safe to do so, and evacuate to the designated safe area.

On-Site Emergency Procedure Lines of Communication

In the event of an on-site emergency, on-site work will cease and notification will be given immediately to the HFA site safety officer, who in turn will contact the HFA project manager. In the event that the HFA site safety officer is not available, the HFA project manager should be contacted directly. The HFA project manager will then notify the Chevron EMC project manager. An appropriate course of action will be developed and cascaded to all on-site field personnel by either the HFA site safety officer and/or the HFA project manager.

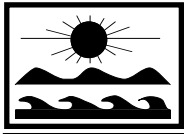
8. OFF-SITE EMERGENCY PROCEDURES

In the event of an off-site emergency that has the potential to impact site activities, Stop Work Authority will be implemented and all on-site field personnel will meet in a location to be determined at daily tailgate meetings.

Off-Site Emergency Procedure Lines of Communication

In the event of an off-site emergency, on-site work will cease and notification will be given immediately to the HFA site safety officer, who in turn will contact the HFA project manager. In the event that the HFA site safety officer is not available, the HFA project manager should be contacted directly. The HFA project manager will then notify the Chevron EMC project manager. An appropriate course of action will be developed and cascaded to all on-site field personnel by either the HFA site safety officer and/or the HFA project manager.

If fieldwork continues for more than 5 days, an on-site emergency evacuation drill will be conducted.



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EXHIBIT 1.

TAILGATE MEETING FORM

HEALTH AND SAFETY MEETING
DAILY SIGN-IN SHEET

DATE:

SITE:

By signing, I acknowledge that I have reviewed the site health and safety plan (HASP) and have participated in a site safety meeting conducted prior to the start of work. I agree to abide by the guidelines of the HASP.

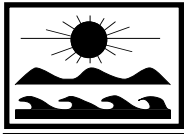
In an emergency, all personnel should evacuate the site, and meet at the location designated below for a headcount:

<u>NAME</u>	<u>COMPANY</u>	<u>SIGNATURE</u>	<u>TIME (IN/OUT)</u>
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____
_____	_____	_____	____/____

Note: This sign-in sheet may be substituted in the field by a client or project specific sign-in sheet.

Document questionable items observed during the day below or activities or safety topics that warrant additional discussion. These items should be reviewed at the Take 2 at 2 Break or during the next morning's health and safety meeting.

1. _____
2. _____
3. _____
4. _____



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EXHIBIT 2.

JOB SAFETY ANALYSIS

Job Safety Analysis

Work Activity: Soil Boring/Monitoring Well Hole Clearance, Drilling and Installation		<input type="checkbox"/> New <input checked="" type="checkbox"/> Revised	Date: 7-25-06	
Client: Chevron Environmental Management Company Loc: 9-2959, 26980 McCall Boulevard, Sun City, California				
Personal Protective Equipment (PPE): Minimum PPE is Level D including: safety glasses or goggles, hard hat, traffic vest, steel-toed boots, hearing protection, and gloves (type dependent on job-specific requirements) Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for required traffic control, air monitoring, and emergency procedures.				
Development Team	Position/Title	Reviewed By	Position/Title	Date
Jon Griffiths	Corporate Safety Coordinator	Mark Fahan	VP/Operations Manager	
Todd McFarland	Associate Geologist	Steve Edelman	VP of Technical Services	
Lorien Sanders	Associate Hydrogeologist	James Anderson	Senior Engineer	
Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Safe Performance Self Assessment (SPSA) procedures must be used prior to starting each task. Also consider traffic and weather conditions (heat, cold, rain, lightning). Stop Work Authority (SWA) should be used if any deviations from this JSA are necessary for job, personal, or site specific reasons. It is the responsibility of the Project Manager and/or the Site Safety Officer to immediately communicate any changes to this JSA to all on-site workers. All employees assigned to this task must attend the daily site safety meeting, which will include the review of this and all other pertinent JSAs, Site Specific Health and Safety Plan (HASP), types of potential hazards, and actual hazards present and controls for these hazards. This meeting must be documented at the beginning of each workday, by completing the Daily Site Safety Meeting Checklist.				
Job Steps	Potential Hazard	Critical Actions		
1. Personal health and safety/Daily Safety Meeting	<ul style="list-style-type: none"> Station traffic Extreme weather conditions General 	<ul style="list-style-type: none"> Watch for traffic Wear traffic vest Set up exclusion zone with a minimum of three delineators during safety meeting Drink plenty of fluids and have plenty of fluids available (water and sports drinks are recommended; coffee and soda may cause further dehydration). Wear proper attire for heat or cold. Use sunscreen to prevent sunburn and lip balm to prevent chapped lips. Be aware of, faintness, dizziness, unconsciousness, paleness, and profuse sweating in personnel (contact PM or if severe, contact emergency personnel). Redness to the face, high body temperature, and lack of sweating may indicate heat stroke (contact emergency personnel immediately) Conduct safety meeting to review site conditions prior to start work Identify nearest hospital, location of health and safety equipment and site emergency shutoff switch 		

<p>2. Working during evening hours</p>	<ul style="list-style-type: none"> • Rest/sleep • Noise • Lighting • Security • Trip/fall hazards • Station traffic/pedestrians 	<ul style="list-style-type: none"> • Confirm that all on-site workers have had necessary rest prior to beginning night activities. • Ensure proper notifications are given and permits received. • Wear hearing protection during use of equipment. • Use light towers to provide the necessary lighting to perform task safely (at least 1 tower). • Off-duty officer or other security detail, as necessary or as required by permits. • Maintain good housekeeping and designate clear paths of travel. • Watch for vehicles and beware of intoxicated pedestrians and drivers. • Set up exclusion zone and traffic control per written plan and include lighted barricades. • Post signs (no smoking, caution hardhat area, prop 65 and do not enter) if applicable.
<p>3. Site borings, core/cookie cut surface</p>	<ul style="list-style-type: none"> • Station traffic/pedestrians • Subsurface structures • Noise • Equipment or Injury during use of air knife, concrete/asphalt coring machinery • Fire 	<ul style="list-style-type: none"> • Watch for vehicles • Set up exclusion zone and traffic control per written plan • Post signs (no smoking, caution hardhat area, prop 65 and do not enter) • Review geophysical, asbuilt and public utility markout service markings • Wear hearing protection during use of coring machine/drill rig • Wear safety glasses, gloves, and all other PPE when coring is taking place • Keep hands clear of moving objects/pinch points • Evaluate need for moving rig prior to hole clearance • Identify emergency shutoff on equipment • A fire extinguisher must be available on-site • Follow requirements of hot work permit (air monitoring for 10% of LEL)
<p>4. Clear borehole manually/air knife</p>	<ul style="list-style-type: none"> • Station traffic/public access • Subsurface structures 	<ul style="list-style-type: none"> • Wear traffic vest and watch for vehicles (see Job Step 2 critical actions) • Have one spotter for each potential obstruction watch while driller moves large vehicle • Chock wheels on large vehicles • Set-up other vehicles and caution tape around exclusion zone • Set-up applicable signs • Follow all client and company-required protocols for borehole clearance • Ensure subsurface utilities are marked prior to clearing the borehole • Watch for changes in soil types or other

	<ul style="list-style-type: none"> • Trip/fall hazards • Noise • Flying debris • Back strain • Hydrocarbon exposure • Fire 	<ul style="list-style-type: none"> indications of backfill or non-native material • Lockout/tagout utilities where required • Maintain good housekeeping and designate clear paths of travel • Wear hearing protection during use of rig • Wear proper eye protection • Use proper lifting techniques and tools • Wear appropriate PPE (including nitrile gloves) and monitor breathing space using calibrated PID • Wash hands prior to eating, drinking, or smoking. • Follow requirements of hot work permit • A fire extinguisher must be available on-site • Identify emergency shutoff switch on rig
5. Set-up/mast-up drill rig	<ul style="list-style-type: none"> • Overhead obstructions/Power lines • Station traffic/public access • Roll Over 	<ul style="list-style-type: none"> • Check area for obstructions beforehand • Have one spotter for each potential obstruction watch while driller moves vehicle and/or raises mast • Do not move drill rig with mast raised • Keep mast at least 10 feet from overhead power lines • Evaluate parking rig to minimize threats from traffic, vapor sources and flying debris • Set-up other vehicles and caution tape around exclusion zone • Set-up applicable signs • Cross all hills and obstructions head on with mast lowered • Set riggers prior to raising mast
6. Drill, collect samples	<ul style="list-style-type: none"> • Moving parts, flying dirt/mud, fall from height, hand tools • Trip/fall hazards • Noise • Hydrocarbon exposure • Fire • Back strain • Cross-contamination of 	<ul style="list-style-type: none"> • Wear prescribed PPE (hard hat, gloves, safety glasses, etc.) • Be aware of hazards • Stay away from moving parts/pinch points and fall from height hazards when possible • Avoid working directly behind drill rig • Identify emergency shutoff on rig • Maintain good housekeeping and designate clear paths of travel • Wear hearing protection during use of rig • Wear nitrile rubber gloves • Wash hands prior to eating, drinking, or smoking. • Screen samples and breathing space with PID, upgrade to OSHA Level C if necessary (organic vapor respirator) • Have fire extinguisher available on-site • Follow requirements of hotwork permit • Use proper lifting techniques and tools • Use triple bucket decontamination for all

	samples and /or borings	sampling equipment, and steam clean auger flights between boreholes
7. Set well casing, backfill and surface borings, set well box	<ul style="list-style-type: none"> • Station traffic • Inadequate sealing of hole/settling • Cement dust exposure • Hand tools 	<ul style="list-style-type: none"> • Wear PPE including reflective traffic vest and watch for traffic (see Job Step 2 critical actions) • Mix grout to specification and completely fill the hole (when using chips, hydrate completely) • Do not allow cement to come in contact with skin and avoid breathing cement dust • Wear leather gloves, safety glasses, and other PPE as required
8. Site cleanup	<ul style="list-style-type: none"> • Traffic • Debris or equipment left on-site or unsecured can cause tripping hazard 	<ul style="list-style-type: none"> • Wear traffic vest and watch for vehicles • Make careful visual sweep of site • Check for tools, debris, or dirt left on-site • Remove free standing water by sweeping

Job Safety Analysis

Work Activity: Pre-mark boring location for USA or geophysical survey		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised		Date: 7-25-06
Client: Chevron Environmental Management Company		Loc: 9-2959, 26980 McCall Boulevard, Sun City, California		
Personal Protective Equipment (PPE): Minimum PPE is Level D including: traffic vest Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for required traffic control, air monitoring, and emergency procedures.				
Development Team	Position/Title	Reviewed By	Position/Title	Date
Jon Griffiths	Corporate Safety Coordinator	Mark Fahan	VP/Operations Manager	
Todd McFarland	Associate Geologist	Steve Edelman	VP of Technical Services	
Lorien Sanders	Associate Hydrogeologist	James Anderson	Senior Engineer	
Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each work day. Safe Performance Self Assessment (SPSA) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, lightning). Stop Work Authority (SWA) should be used if any deviations from this JSA are necessary for job, personal, or site specific reasons. It is the responsibility of the Project Manager and/or the Site Safety Officer to immediately communicate any changes to this JSA to all on-site workers.				
Job Steps	Potential Hazard	Critical Actions		
1. Personal health and safety	<ul style="list-style-type: none"> Heat stress and Heat stroke General 	<ul style="list-style-type: none"> Drink plenty of fluids and have plenty of fluids available (water and sports drinks are recommended; coffee and soda may actually cause further dehydration). Wear loose, non-restrictive clothing and hat/cap. Stay in shade as much as possible to keep cool (use vehicle and air-conditioning if necessary). Use sunscreen to prevent sunburn and lip balm to prevent chapped lips. Be aware of faintness, dizziness, unconsciousness, paleness, and profuse sweating in site personnel (contact PM or if severe, contact emergency personnel). Redness to the face, high body temperature, and lack of sweating may indicate heat stroke (contact emergency personnel immediately) Conduct safety meeting to review site conditions prior to start work Identify nearest hospital, location of health and safety equipment and emergency shutoff switch 		
2. Mark/clear boring locations	<ul style="list-style-type: none"> Station/sidewalk/street traffic 	<ul style="list-style-type: none"> Wear traffic vest Watch for vehicles Use buddy system where possible Set-up traffic control per plan and in accordance with assessment of site 		

	<ul style="list-style-type: none"> • Subsurface utilities • Vapors/explosion 	<p>conditions</p> <ul style="list-style-type: none"> • Notify public utility marking service • Look for cuts or subsidence of pavement indicating possible trench • Look for overhead obstructions • Make sure location is at least 3 feet away from line connecting similar looking manhole covers • Make sure location is at least 3 feet away from line perpendicular to street from manholes in sidewalk • Make sure location is outside suspected UST/piping areas • Mark large enough area so that boring may be relocated within marked area if necessary to avoid utility • Check vapor levels if working near fueling system with non-intrinsically safe equipment
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Job Safety Analysis

Work Activity: Surveying ☒ New ☐ Revised Date: 7-25-06

Client: Chevron Environmental Management Company Loc: 9-2959, 26980 McCall Boulevard, Sun City, California

Personal Protective Equipment (PPE):

Minimum PPE is Level D including: safety glasses or goggles, traffic vest, steel-toed boots, and gloves (type dependent on job-specific requirements)

Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for required traffic control, air monitoring, and emergency procedures.

Development Team	Position/Title	Reviewed By	Position/Title	Date
Jon Griffiths	Corporate Safety Coordinator	Mark Fahan	VP/Operations Manager	
Todd McFarland	Associate Geologist	Steve Edelman	VP of Technical Services	
Lorien Sanders	Associate Hydrogeologist	James Anderson	Senior Engineer	

Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each work day. Safe Performance Self Assessment (SPSA) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, lightning).

Stop Work Authority (SWA) should be used if any deviations from this JSA are necessary for job, personal, or site specific reasons. It is the responsibility of the Project Manager and/or the Site Safety Officer to immediately communicate any changes to this JSA to all on-site workers.

Job Steps	Potential Hazard	Critical Actions
1. Personal health and safety	<ul style="list-style-type: none"> Heat stress and Heat stroke 	<ul style="list-style-type: none"> Drink plenty of fluids and have plenty of fluids available (water and sports drinks are recommended; coffee and soda may actually cause further dehydration). Wear loose, non-restrictive clothing and hat/cap. Stay in shade as much as possible to keep cool (use vehicle and air-conditioning if necessary). Use sunscreen to prevent sunburn and lip balm to prevent chapped lips. Be aware of faintness, dizziness, unconsciousness, paleness, and profuse sweating in site personnel (contact PM or if severe, contact emergency personnel). Redness to the face, high body temperature, and lack of sweating may indicate heat stroke (contact emergency personnel immediately)
2. Set up survey equipment	<ul style="list-style-type: none"> Traffic Injury to hands Heavy lifting 	<ul style="list-style-type: none"> Wear traffic vest Watch for vehicles Set-up traffic control per WATCH manual and traffic control plan Wear leather gloves to open well covers and lids Use proper lifting posture when opening the large manhole covers
3. Site cleanup	<ul style="list-style-type: none"> Traffic 	<ul style="list-style-type: none"> Wear traffic vest and watch for vehicles

	<ul style="list-style-type: none">• Debris or equipment left on-site or unsecured can cause tripping hazard	<ul style="list-style-type: none">• Make careful visual sweep of site• Check for tools left on-site
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Job Safety Analysis

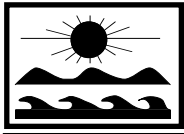
Cone Penetrometer Testing

JSA Type: <input checked="" type="checkbox"/> SAR Operations <input type="checkbox"/> Transport <input type="checkbox"/> Office <input type="checkbox"/> Construction		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised		Date: 7/25/2006
Client: Chevron Environmental Management Company Loc: 9-2959, 26980 McCall Boulevard, Sun City, California				
Work Type: Cone Penetrometer Rig Operations		Work Activity: Cone Penetrometer Testing		
<u>Personal Protective Equipment (PPE):</u> Minimum PPE is Level D including: Nomex Suit (as needed), safety glasses or goggles, steel-toed boots, hearing protection (as needed), hard hat and gloves. Additional PPE may be required in the Health & Safety Plan (HSP).				
Development Team	Position/Title	Reviewed By	Position/Title	Date
Bobby Hancock	CPT Operations Manager	Steve Edelman		
Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each workday. Safe Performance Self Assessment (SPSA) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, lightning).				
❶ Job Steps	❷ Potential Hazard	❸ Critical Actions		
1. Vehicle Parking	<ul style="list-style-type: none"> Property Damage, Physical Injury, Disruption to Traffic Flow 	<ul style="list-style-type: none"> Avoid all overhead structures when entering the site. Assess the site for suitable safe parking. Utilize personnel to assist with vehicle maneuvering on site. Verify all vertical clearances if vehicles must be driven under a structure. Verify trucks have wheels chocked 		
2. Site Safety Communication	<ul style="list-style-type: none"> General Site Safety 	<ul style="list-style-type: none"> Conduct/Participate in site safety meeting with all parties prior to commencing work at the site. Review the following: <ul style="list-style-type: none"> JSA Site H&S plan Hospital Location Emergency equipment shut off First Aid Kit Location Eye Wash Station Fire Extinguisher Location Spill Containment Location Exclusion Zone Delineation Minimum PPE Requirement Site Traffic Plan Emergency plan w/contacts Review SPSA protocols Evacuation Area and Route Additional site safety issues Minimum PPE as defined above REQUIRED for all site work. 		

Job Safety Analysis

Cone Penetrometer Testing

3. Equipment Location Determination	<ul style="list-style-type: none"> Impaired Vehicle / Tanker Traffic Routes or Refinery Operations 	<ul style="list-style-type: none"> Verify critical traffic routes for subcontractor activity and site traffic.
4. Equipment Setup	<ul style="list-style-type: none"> Collisions (structures, vehicles, pedestrians) 	<ul style="list-style-type: none"> Exit vehicle and verify physical structures prior to maneuvering. Utilize site personnel to assist with clearance for vehicle maneuvering.
5. Prepare job site	<ul style="list-style-type: none"> Injury or Exposure to Public or Other Onsite Personnel Slip/Fall Hazards Back Injury from Heavy Lifting Heat Stress, Exhaustion, or Stroke 	<ul style="list-style-type: none"> Set up work/exclusion zone. Post appropriate signs prohibiting unauthorized entry. Set up clear walking paths between workstations and keep work area clear of any trash or unnecessary equipment. Use proper lifting posture when unloading and moving equipment and buckets. Setup temporary shade for work area if needed. Maintain drinking water at job site.
6. Lifting of CPT Rig	<ul style="list-style-type: none"> Area is clear & stable 	<ul style="list-style-type: none"> Visually check area to make sure the rig is over a secure surface and no obstructions are in the way of the outriggers
7. CPT operations	<ul style="list-style-type: none"> Aware of moving equipment 	<ul style="list-style-type: none"> Make sure there are no obstructions in the way of the hydraulic push and everyone is clear. <p>Communicate to everyone the dangers of the Hydraulic push</p> <p>Keep hands clear of cog wheel</p> <p>Do not put hands between the top rods and the ceiling during a CPT test.</p>



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EXHIBIT 3.

MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

DIESEL FUEL No. 2

Product Use: Fuel

Product Number(s): CPS220122 [See Section 16 for Additional Product Numbers]

Synonyms: 15 S Diesel Fuel 2, Alternative Low Aromatic Diesel (ALAD), Calco LS Diesel 2, Calco ULS DF2, Calco ULS Diesel 2, Chevron LS Diesel 2, Chevron ULS Diesel 2, Diesel Fuel Oil, Diesel Grade No. 2, Diesel No. 2-D S15, Diesel No. 2-D S500, Diesel No. 2-D S5000, Distillates, straight run, Gas Oil, HS Diesel 2, HS Heating Fuel 2, Light Diesel Oil Grade No. 2-D, LS Diesel 2, LS Heating Fuel 2, Marine Diesel, RR Diesel Fuel, Texaco Diesel, Texaco Diesel No. 2, Ultra Low Sulfur Diesel 2

Company Identification

Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron/Texaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

MSDS Requests: (800) 689-3998

Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS covers all Chevron and Calco non-CARB Diesel No. 2 Fuels. The sulfur content is less than 0.5% (mass). Red dye is added to non-taxable fuel. (MSDS 6894)

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Diesel Fuel No. 2	68476-34-6	100 %wt/wt
Distillates, hydrodesulfurized, middle	64742-80-9	0 - 100 %wt/wt
Distillates, straight run middle (gas oil, light)	64741-44-2	0 - 100 %wt/wt
Kerosine	8008-20-6	0 - 25 %wt/wt
Kerosine, hydrodesulfurized	64742-81-0	0 - 25 %wt/wt
Distillates (petroleum), light catalytic cracked	64741-59-9	0 - 50 %wt/wt
Naphthalene	91-20-3	0.02 - 0.2 %wt/wt
Total sulfur	None	0 - 0.5 %wt/wt

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- COMBUSTIBLE LIQUID AND VAPOR
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- CAUSES SKIN IRRITATION
- MAY CAUSE CANCER BASED ON ANIMAL DATA
- TOXIC TO AQUATIC ORGANISMS

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.

Inhalation: Mists of this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Cancer: Prolonged or repeated exposure to this material may cause cancer. Whole diesel engine exhaust has been classified as a Group 2A carcinogen (probably carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Diesel exhaust particulate has been classified as reasonably anticipated to be a human carcinogen in the National Toxicology Program's Ninth Report on Carcinogens. The National Institute of Occupational Safety and Health (NIOSH) has recommended that whole diesel exhaust be regarded as potentially causing cancer. Diesel engine exhaust is known to the State of California to cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Combustible liquid.

NFPA RATINGS: Health: 0 Flammability: 2 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Pensky-Martens Closed Cup) 52 °C (125 °F) (Min)

Autoignition: 257 °C (494 °F)

Flammability (Explosive) Limits (% by volume in air): Lower: 0.6 Upper: 4.7

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 29C (85F).

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Do not breathe mist. Wash thoroughly after handling. Keep out of the reach of children.

Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information,

refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Diesel Fuel No. 2	ACGIH	100 mg/m3	--	--	Skin A3 total hydrocarbon
Diesel Fuel No. 2	CVX	--	1000 mg/m3	--	--
Kerosine	ACGIH	200 mg/m3	--	--	Skin A3 Total hydrocarbon vapor
Kerosine	CVX	--	1000 mg/m3	--	--
Kerosine, hydrodesulfurized	ACGIH	200 mg/m3	--	--	Skin A3 Total hydrocarbon vapor
Kerosine, hydrodesulfurized	CVX	--	1000 mg/m3	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin
Naphthalene	OSHA Z-1	50 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Varies depending on specification

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: 0.04 kPa (Approximate) @ 40 °C (104 °F)

Vapor Density (Air = 1): >1

Boiling Point: 175.6°C (348°F) - 370°C (698°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.8 - 0.88 @ 15.6°C (60.1°F) (Typical)

Viscosity: 1.9 cSt - 4.1 cSt @ 40°C (104°F)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.

Acute Dermal Toxicity: LD50: >5ml/kg (rabbit).

Acute Oral Toxicity: LD50: > 5 ml/kg (rat)

Acute Inhalation Toxicity: 4 hour(s) LC50: > 5mg/l (rat).

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains gas oils.

CONCAWE (product dossier 95/107) has summarized current health, safety and environmental data available for a number of gas oils, typically hydrodesulfurized middle distillates, CAS 64742-80-9, straight-run middle distillates, CAS 64741-44-2, and/or light cat-cracked distillate CAS 64741-59-9. **CARCINOGENICITY:** All materials tested have caused the development of skin tumors in mice, but all featured severe skin irritation and sometimes a long latency period before tumors developed. Straight-run and cracked gas oil samples were studied to determine the influence of dermal irritation on the carcinogenic activity of middle distillates. At non-irritant doses the straight-run gas oil was not carcinogenic, but at irritant doses, weak activity was demonstrated. Cracked gas oils, when diluted with mineral oil, demonstrated carcinogenic activity irrespective of the occurrence of skin irritation. Gas oils were tested on male mice to study tumor initiating/promoting activity. The results demonstrated that while a straight-run gas oil sample was neither an initiator or promotor, a blend of straight-run and FCC stock was both a tumor initiator and a promoter.

GENOTOXICITY: Hydrotreated & hydrodesulfurized gas oils range in activity from inactive to weakly positive in in-vitro bacterial mutagenicity assays. Mouse lymphoma assays on straight-run gas oils without subsequent hydrodesulphurization gave positive results in the presence of S9 metabolic activation. In-vivo bone marrow cytogenetics and sister chromatic exchange assay exhibited no activity for straight-run components with or without hydrodesulphurization. Thermally or catalytically cracked gas oils tested with in-vitro bacterial mutagenicity assays in the presence of S9 metabolic activation were shown to be mutagenic. In-vitro sister chromatic exchange assays on cracked gas oil gave equivocal results both with and without S9 metabolic activation. In-vivo bone marrow cytogenetics assay was inactive for two cracked gas oil samples. Three hydrocracked gas oils were tested with in-vitro bacterial mutagenicity assays with S9, and one of the three gave positive results. Twelve distillate fuel samples were tested with in-vitro bacterial mutagenicity assays & with S9 metabolic activation and showed negative to weakly positive results. In one series, activity was shown to be related to the PCA content of samples tested. Two in-vivo studies were also conducted. A mouse dominant lethal assay was negative for a sample of diesel fuel. In the other study, 9 samples of No 2 heating oil containing 50% cracked stocks caused a slight increase in the number of chromosomal aberrations in bone marrow cytogenetics assays. **DEVELOPMENTAL TOXICITY:** Diesel fuel vapor did not cause fetotoxic or teratogenic effects when pregnant rats were exposed on days 6-15 of pregnancy. Gas oils were applied to the skin of pregnant rats daily on days 0-19 of gestation. All but one (coker light gas oil) caused fetotoxicity (increased resorptions, reduced litter weight, reduced litter size) at dose levels that were also maternally toxic.

This product contains naphthalene. **GENERAL TOXICITY:** Exposure to naphthalene has been reported to cause methemoglobinemia and/or hemolytic anemia, especially in humans deficient in the enzyme glucose-6-phosphate dehydrogenase. Laboratory animals given repeated oral doses of naphthalene have developed cataracts. **REPRODUCTIVE TOXICITY AND BIRTH DEFECTS:** Naphthalene did not cause birth defects when administered orally to rabbits, rats, and mice during pregnancy, but slightly reduced litter size in mice at dose levels that were lethal to the pregnant females. Naphthalene has been reported to cross the human placenta. **GENETIC TOXICITY:** Naphthalene caused chromosome aberrations and sister chromatid exchanges in Chinese hamster ovary cells, but was not a mutagen in several other in-vitro tests. **CARCINOGENICITY:** In a study conducted by the National Toxicology Program (NTP), mice exposed to 10 or 30 ppm of naphthalene by inhalation daily for two years had chronic inflammation of the nose and lungs and increased incidences of metaplasia in those tissues. The incidence of benign lung tumors (alveolar/bronchiolar adenomas) was significantly increased in the high-dose female group but not in the male groups. In another two-year inhalation study conducted by NTP, exposure of rats to 10, 30, and 60 ppm naphthalene caused increases in the incidences of a variety of nonneoplastic lesions in the nose. Increases in nasal tumors were seen in both sexes, including olfactory neuroblastomas in females at 60 ppm and adenomas of the respiratory epithelium in males at all exposure levels. The relevance of these effects to humans has not been established. No carcinogenic effect was reported in a 2-year feeding study in rats receiving naphthalene at 41 mg/kg/day.

This product may contain significant amounts of Polynuclear Aromatic Hydrocarbons (PAH's) which have been shown to cause skin cancer after prolonged and frequent contact with the skin of test animals. Brief or intermittent skin contact with this product is not expected to have serious effects if it is washed from the skin. While skin cancer is unlikely to occur in human beings following use of this product, skin contact and breathing, of mists, vapors or dusts should be reduced to a minimum.

SECTION 12 ECOLOGICAL INFORMATION**ECOTOXICITY**

96 hour(s) LC50: 21-210 mg/l (Salmo gairdneri)

48 hour(s) EC50: 20-210 mg/l (Daphnia magna)

72 hour(s) EC50: 2.6-25 mg/l (Raphidocellus subcapitata)

This material is expected to be toxic to aquatic organisms.

ENVIRONMENTAL FATE

On release to the environment the lighter components of diesel fuel will generally evaporate but depending on local environmental conditions (temperature, wind, mixing or wave action, soil type, etc.) the remainder may become dispersed in the water column or absorbed to soil or sediment. Diesel fuel would not be expected to be readily biodegradable. In a modified Strum test (OECD method 301B) approximately 40% biodegradation was recorded over 28 days. However, it has been shown that most hydrocarbon components of diesel fuel are degraded in soil in the presence of oxygen. Under anaerobic conditions, such as in anoxic sediments, rates of biodegradation are negligible.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: GAS OIL, Combustible Liquid, UN1202,III

IMO/IMDG Shipping Description: GAS OIL,3,UN1202,III, FLASH POINT SEE SECTION 5

ICAO/IATA Shipping Description: GAS OIL,3,UN1202,III,

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Diesel Fuel No. 2	07
Distillates, straight run middle (gas oil, light)	06
Kerosine	05, 06, 07
Naphthalene	01-2B, 02, 03, 04, 05, 06, 07

CERCLA REPORTABLE QUANTITIES(RQ)/EPCRA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
Naphthalene	100 lbs	None	55556 lbs

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:

Refer to components listed in Section 2. Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: DIESEL FUEL

WHMIS CLASSIFICATION:

Class B, Division 3: Combustible Liquids
Class D, Division 2, Subdivision A: Very Toxic Material -
Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material -
Skin or Eye Irritation

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 2 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

Additional Product Number(s): CPS225114, CPS225115, CPS225150, CPS266176, CPS270005, CPS270094, CPS270095, CPS270096, CPS271006, CPS272093, CPS272102, CPS272126, CPS272152, CPS272185, CPS272190, CPS272195, CPS272593, CPS272601, CPS272693, CPS272793, CPS273003, CPS273030, CPS273053, CPS275000

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1,8
Revision Date: 02/14/2006

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the ChevronTexaco Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON and TEXACO MID-GRADE UNLEADED GASOLINES

Product Use: Fuel

Product Number(s): CPS201001 [See Section 16 for Additional Product Numbers]

Synonyms: Calco Mid-Grade Unleaded Gasoline, Chevron Mid-Grade Unleaded Gasoline, Chevron Plus Unleaded Gasoline, Texaco Power Plus Gasoline

Company Identification

Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %vol/vol
Benzene	71-43-2	0.1 - 4.9 %vol/vol
Toluene (methylbenzene)	108-88-3	1 - 17 %vol/vol
Ethyl benzene	100-41-4	0.1 - 3 %vol/vol
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	1330-20-7	1 - 15 %vol/vol
Butane	106-97-8	1 - 12 %vol/vol
Heptane	142-82-5	1 - 4 %vol/vol
Hexane	110-54-3	1 - 5 %vol/vol
Cyclohexane	110-82-7	1 - 3 %vol/vol
Methylcyclohexane	108-87-2	1 - 2 %vol/vol
Pentane, 2,2,4-trimethyl- (Isooctane)	540-84-1	1 - 13 %vol/vol
Naphthalene	91-20-3	0.1 - 2 %vol/vol
Ethanol	64-17-5	0 - 10 %vol/vol
Methyl tert-butyl ether (MTBE)	1634-04-4	0 - 15 %vol/vol
Tertiary amyl methyl ether (TAME)	994-05-8	0 - 17 %vol/vol
Ethyl tert-butyl ether (ETBE)	637-92-3	0 - 18 %vol/vol

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES EYE AND SKIN IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS

***** IMMEDIATE HEALTH EFFECTS

Eye: Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELATED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

Cancer: Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains benzene, which has been classified as an A1 Group Confirmed Human Carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH).

See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FLAMMABLE PROPERTIES:

Flashpoint: (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)

Autoignition: > 280 °C (> 536 °F)

Flammability (Explosive) Limits (% by volume in air): Lower: 1.4 Upper: 7.6 (Typical)

EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not store in open or unlabeled containers. Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Never siphon gasoline by mouth.

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	--	Skin A1
Butane	ACGIH	800 ppm (weight)	--	--	--
Cyclohexane	ACGIH	100 ppm (weight)	--	--	--
Ethanol	ACGIH	1000 ppm (weight)	--	--	A4
Ethyl benzene	ACGIH	100 ppm (weight)	125 ppm (weight)	--	A3
Ethyl tert-butyl ether (ETBE)	ACGIH	5 ppm (weight)	--	--	--
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	--	A3
Heptane	ACGIH	400 ppm (weight)	500 ppm (weight)	--	--
Hexane	ACGIH	50 ppm (weight)	--	--	Skin
Methyl tert-butyl ether (MTBE)	ACGIH	50 ppm (weight)	--	--	A3
Methyl tert-butyl ether (MTBE)	CVX	--	50 ppm	--	--
Methylcyclohexane	ACGIH	400 ppm (weight)	--	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin A4
Pentane, 2,2,4-trimethyl- (Isooctane)	ACGIH	300 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	ACGIH	20 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	CVX	--	50 ppm	--	--
Toluene (methylbenzene)	ACGIH	50 ppm (weight)	--	--	Skin A4
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	ACGIH	100 ppm (weight)	150 ppm (weight)	--	A4

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)

Vapor Density (Air = 1): 3 - 4 (Typical)

Boiling Point: 37.8°C (100°F) - 204.4°C (400°F) (Typical)

Solubility: Insoluble in water; miscible with most organic solvents.

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F) (Typical)
Viscosity: <1 SUS @ 37.8°C (100°F)
Evaporation Rate: No Data Available
Odor Threshold: No Data Available
Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.

Skin Irritation: For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.

Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.

Acute Dermal Toxicity: LD50: >3.75g/kg (rabbit).

Acute Oral Toxicity: LD50: >5 ml/kg (rat)

Acute Inhalation Toxicity: 4 hour(s) LD50: >20000mg/m3 (rat).

For additional information on the acute toxicity of the components, call the technical information center.

Subchronic Effects: Exposure of rats for 13 weeks (6 hr/day for 5 days/week) to the light ends of gasoline (up to 20,000 mg/m3) resulted in minimal responses of toxicity. There were no indications of neurotoxicity based morphological, functional and biochemical indices. There was also no evidence of immunotoxicity in the rats. However, when rats were exposed to gasoline vapor containing ethanol up to 20,000 mg/m3 there was evidence of both humoral immune suppression and mild astrogliosis. **Reproduction and Birth Defects:** Exposure of rats to the light ends of gasoline at up to 20,000 mg/m3 had generally no impact upon reproductive abilities and did not cause birth defects.

Genetic Toxicity: Gasoline was not mutagenic, with or without activation, in the Ames assay (Salmonella typhimurium), Saccharomyces cerevisiae, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. Inhalation exposure of rats to the light ends of gasoline caused increased sister chromatid exchange in their peripheral white blood cells but did not cause an increase in micronucleated red blood cells in their bone marrow.

ADDITIONAL TOXICOLOGY INFORMATION:

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the ChevronTexaco Emergency Information Center (see Section 1 for phone numbers).

Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.

Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.

To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

96 hour(s) LC50: 8.3 mg/l (Cyprinodon variegatus)

96 hour(s) LC50: 1.8 mg/l (Mysidopsis bahia)
 48 hour(s) LC50: 3.0 mg/l (Daphnia magna)
 96 hour(s) LC50: 2.7 mg/l (Oncorhynchus mykiss)

This material is expected to be toxic to aquatic organisms. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

ENVIRONMENTAL FATE

This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylene and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261), Environment Canada, or other State, Provincial, and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: GASOLINE//3//UN1203//I

DOT Shipping Description: GASOLINE,3,UN1203,II

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1
 01-2A=IARC Group 2A
 01-2B=IARC Group 2B
 35=WHMIS IDL

The following components of this material are found on the regulatory lists indicated.

Benzene	01-1, 35
Butane	35
Cyclohexane	35
Ethanol	01-1, 35
Ethyl benzene	01-2B, 35
Gasoline	01-2B
Heptane	35
Hexane	35
Methylcyclohexane	35
Naphthalene	01-2B, 35
Pentane, 2,2,4-trimethyl- (Isooctane)	35
Toluene (methylbenzene)	35
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	35

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia), ENCS (Japan), IECSC (China), PICCS (Philippines).

WHMIS CLASSIFICATION:

Class B, Division 2: Flammable Liquids
 Class D, Division 2, Subdivision A: Very Toxic Material -
 Carcinogenicity
 Class D, Division 2, Subdivision B: Toxic Material -
 Skin or Eye Irritation

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: 08/30/2005

SECTION 16 OTHER INFORMATION

Additional Product Number(s): CPS201003, CPS201004, CPS201006, CPS201007, CPS201008, CPS201010, CPS201011, CPS201018, CPS201021, CPS201025, CPS201031, CPS201032, CPS201033, CPS201034, CPS201036, CPS201037, CPS201038, CPS201041, CPS201043, CPS201046, CPS201048, CPS201064, CPS201208, CPS201210, CPS201211, CPS201212, CPS201230, CPS201231, CPS201232, CPS201260, CPS201261, CPS201262, CPS201271, CPS201272, CPS201273, CPS201280, CPS201281, CPS201282, CPS201288, CPS201290, CPS201291, CPS201292, CPS201851, CPS201852, CPS201858, CPS201859, CPS201860, CPS204004, CPS204005, CPS204012, CPS204013, CPS204024, CPS204025, CPS204048, CPS204049, CPS204072, CPS204073, CPS204090, CPS204091, CPS204106, CPS204107, CPS204118, CPS204119, CPS204142, CPS204143, CPS204166, CPS204167, CPS204190, CPS204191, CPS204202, CPS204203, CPS204214, CPS204215, CPS204226, CPS204227, CPS204250, CPS204251, CPS204274, CPS204275, CPS204292, CPS204293, CPS204325, CPS204326, CPS204360, CPS204361, CPS204366, CPS204367, CPS204372, CPS204373, CPS204378, CPS204379, CPS204384, CPS204385, CPS204390, CPS204391, CPS204396, CPS204397, CPS204402, CPS204403, CPS204408, CPS204409, CPS204414, CPS204415, CPS204420, CPS204421, CPS204426, CPS204427, CPS204432, CPS204433, CPS204438, CPS204439, CPS204468, CPS204469, CPS204486, CPS204487, CPS204504, CPS204505, CPS204522, CPS204523, CPS204540, CPS204541, CPS204558, CPS204559, CPS204576, CPS204577, CPS204594, CPS204595, CPS204612, CPS204613, CPS204630, CPS204631, CPS204648, CPS204649, CPS204666, CPS204667, CPS204692, CPS204693, CPS204698, CPS204699, CPS204704, CPS204705, CPS204710, CPS204711, CPS204723, CPS204724, CPS204729, CPS204730

REVISION STATEMENT: This is a new Material Safety Data Sheet.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON and TEXACO PREMIUM UNLEADED GASOLINES

Product Use: Fuel**Product Number(s):** CPS201019 [See Section 16 for Additional Product Numbers]**Synonyms:** Calco Premium Gasoline, Chevron Premium Unleaded Gasoline, Chevron Supreme Unleaded Gasoline, Chevron Supreme Plus Unleaded Gasoline, Texaco Power Premium Unleaded Gasoline**Company Identification**

Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %vol/vol
Benzene	71-43-2	0.1 - 4.9 %vol/vol
Toluene (methylbenzene)	108-88-3	1 - 17 %vol/vol
Ethyl benzene	100-41-4	0.1 - 3 %vol/vol
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	1330-20-7	1 - 15 %vol/vol
Butane	106-97-8	1 - 12 %vol/vol
Heptane	142-82-5	1 - 4 %vol/vol
Hexane	110-54-3	1 - 5 %vol/vol
Cyclohexane	110-82-7	1 - 3 %vol/vol
Methylcyclohexane	108-87-2	1 - 2 %vol/vol
Pentane, 2,2,4-trimethyl- (Isooctane)	540-84-1	1 - 13 %vol/vol
Naphthalene	91-20-3	0.1 - 2 %vol/vol
Ethanol	64-17-5	0 - 10 %vol/vol
Methyl tert-butyl ether (MTBE)	1634-04-4	0 - 15 %vol/vol
Tertiary amyl methyl ether (TAME)	994-05-8	0 - 17 %vol/vol
Ethyl tert-butyl ether (ETBE)	637-92-3	0 - 18 %vol/vol

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES EYE AND SKIN IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS

IMMEDIATE HEALTH EFFECTS

Eye: Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

Cancer: Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains benzene, which has been classified as an A1 Group Confirmed Human Carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH).

See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FLAMMABLE PROPERTIES:

Flashpoint: (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)

Autoignition: > 280 °C (> 536 °F)

Flammability (Explosive) Limits (% by volume in air): Lower: 1.4 Upper: 7.6 (Typical)

EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not store in open or unlabeled containers. Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Never siphon gasoline by mouth.

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	--	Skin A1
Butane	ACGIH	800 ppm (weight)	--	--	--
Cyclohexane	ACGIH	100 ppm (weight)	--	--	--
Ethanol	ACGIH	1000 ppm (weight)	--	--	A4
Ethyl benzene	ACGIH	100 ppm (weight)	125 ppm (weight)	--	A3
Ethyl tert-butyl ether (ETBE)	ACGIH	5 ppm (weight)	--	--	--
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	--	A3
Heptane	ACGIH	400 ppm (weight)	500 ppm (weight)	--	--
Hexane	ACGIH	50 ppm (weight)	--	--	Skin
Methyl tert-butyl ether (MTBE)	ACGIH	50 ppm (weight)	--	--	A3
Methyl tert-butyl ether (MTBE)	CVX	--	50 ppm	--	--
Methylcyclohexane	ACGIH	400 ppm (weight)	--	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin A4
Pentane, 2,2,4-trimethyl- (Isooctane)	ACGIH	300 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	ACGIH	20 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	CVX	--	50 ppm	--	--
Toluene (methylbenzene)	ACGIH	50 ppm (weight)	--	--	Skin A4
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	ACGIH	100 ppm (weight)	150 ppm (weight)	--	A4

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)

Vapor Density (Air = 1): 3 - 4 (Typical)

Boiling Point: 37.8°C (100°F) - 204.4°C (400°F) (Typical)

Solubility: Insoluble in water; miscible with most organic solvents.

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F) (Typical)

Viscosity: <1 SUS @ 37.8°C (100°F)

Evaporation Rate: No Data Available

Odor Threshold: No Data Available

Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.

Skin Irritation: For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.

Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.

Acute Dermal Toxicity: LD50: >3.75g/kg (rabbit).

Acute Oral Toxicity: LD50: >5 ml/kg (rat)

Acute Inhalation Toxicity: 4 hour(s) LD50: >20000mg/m3 (rat).

For additional information on the acute toxicity of the components, call the technical information center.

Subchronic Effects: Exposure of rats for 13 weeks (6 hr/day for 5 days/week) to the light ends of gasoline (up to 20,000 mg/m³) resulted in minimal responses of toxicity. There were no indications of neurotoxicity based morphological, functional and biochemical indices. There was also no evidence of immunotoxicity in the rats. However, when rats were exposed to gasoline vapor containing ethanol up to 20,000 mg/m³ there was evidence of both humoral immune suppression and mild astrogliosis. **Reproduction and Birth Defects:** Exposure of rats to the light ends of gasoline at up to 20,000 mg/m³ had generally no impact upon reproductive abilities and did not cause birth defects.

Genetic Toxicity: Gasoline was not mutagenic, with or without activation, in the Ames assay (*Salmonella typhimurium*), *Saccharomyces cerevisiae*, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. Inhalation exposure of rats to the light ends of gasoline caused increased sister chromatid exchange in their peripheral white blood cells but did not cause an increase in micronucleated red blood cells in their bone marrow.

ADDITIONAL TOXICOLOGY INFORMATION:

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the ChevronTexaco Emergency Information Center (see Section 1 for phone numbers).

Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.

Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.

To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

96 hour(s) LC50: 8.3 mg/l (*Cyprinodon variegatus*)

96 hour(s) LC50: 1.8 mg/l (*Mysidopsis bahia*)

48 hour(s) LC50: 3.0 mg/l (*Daphnia magna*)

96 hour(s) LC50: 2.7 mg/l (*Oncorhynchus mykiss*)

This material is expected to be toxic to aquatic organisms. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methyl-naphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

ENVIRONMENTAL FATE

This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261), Environment Canada, or other State, Provincial, and local regulations. Measurement of certain physical

properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: GASOLINE//3//UN1203//I

DOT Shipping Description: GASOLINE,3,UN1203,I

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B
35=WHMIS IDL

The following components of this material are found on the regulatory lists indicated.

Benzene	01-1, 35
Butane	35
Cyclohexane	35
Ethanol	01-1, 35
Ethyl benzene	01-2B, 35
Gasoline	01-2B
Heptane	35
Hexane	35
Methylcyclohexane	35
Naphthalene	01-2B, 35
Pentane, 2,2,4-trimethyl- (Isooctane)	35
Toluene (methylbenzene)	35
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	35

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia), ENCS (Japan), IECSC (China), PICCS (Philippines).

WHMIS CLASSIFICATION:

Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material -
Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material -
Skin or Eye Irritation

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: 08/30/2005

SECTION 16 OTHER INFORMATION

Additional Product Number(s): CPS201024, CPS201050, CPS201051, CPS201058, CPS201060, CPS201061, CPS201066, CPS201068, CPS201069, CPS201071, CPS201072, CPS201078, CPS201081, CPS201084, CPS201085, CPS201088, CPS201091, CPS201092, CPS201094, CPS201096, CPS201097, CPS201098, CPS201101, CPS201103, CPS201114, CPS201117, CPS201193, CPS201213, CPS201214, CPS201215, CPS201233, CPS201234, CPS201235, CPS201263, CPS201264, CPS201265, CPS201274, CPS201275, CPS201276, CPS201283, CPS201284, CPS201285, CPS201293, CPS201294, CPS201295, CPS201853, CPS201854, CPS201861, CPS201862, CPS201863, CPS204006, CPS204007, CPS204008, CPS204009, CPS204014, CPS204015, CPS204026, CPS204027, CPS204050, CPS204051, CPS204074, CPS204075, CPS204092, CPS204093, CPS204108, CPS204109, CPS204120, CPS204121, CPS204144, CPS204145, CPS204168, CPS204169, CPS204192, CPS204193,

CPS204204, CPS204205, CPS204216, CPS204217, CPS204228, CPS204229, CPS204252, CPS204253, CPS204276, CPS204277, CPS204294, CPS204295, CPS204327, CPS204328, CPS204329, CPS204351, CPS204353, CPS204355, CPS204357, CPS204362, CPS204363, CPS204368, CPS204369, CPS204374, CPS204375, CPS204380, CPS204381, CPS204386, CPS204387, CPS204392, CPS204393, CPS204398, CPS204399, CPS204404, CPS204405, CPS204410, CPS204411, CPS204416, CPS204417, CPS204422, CPS204423, CPS204428, CPS204429, CPS204434, CPS204435, CPS204440, CPS204441, CPS204443, CPS204447, CPS204451, CPS204455, CPS204459, CPS204463, CPS204470, CPS204471, CPS204488, CPS204489, CPS204506, CPS204507, CPS204524, CPS204525, CPS204542, CPS204543, CPS204560, CPS204561, CPS204578, CPS204579, CPS204596, CPS204597, CPS204614, CPS204615, CPS204632, CPS204633, CPS204650, CPS204651, CPS204668, CPS204669, CPS204683, CPS204694, CPS204695, CPS204700, CPS204701, CPS204706, CPS204707, CPS204712, CPS204713, CPS204725, CPS204726, CPS204731, CPS204732, CPS241766

REVISION STATEMENT: This is a new Material Safety Data Sheet.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON and TEXACO REGULAR UNLEADED GASOLINES

Product Use: Fuel**Product Number(s):** CPS201000 [See Section 16 for Additional Product Numbers]**Synonyms:** Calco Regular Unleaded Gasoline, Chevron Regular Unleaded Gasoline, Texaco Unleaded Gasoline**Company Identification**

Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %vol/vol
Benzene	71-43-2	0.1 - 4.9 %vol/vol
Toluene (methylbenzene)	108-88-3	1 - 17 %vol/vol
Ethyl benzene	100-41-4	0.1 - 3 %vol/vol
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	1330-20-7	1 - 15 %vol/vol
Butane	106-97-8	1 - 12 %vol/vol
Heptane	142-82-5	1 - 4 %vol/vol
Hexane	110-54-3	1 - 5 %vol/vol
Cyclohexane	110-82-7	1 - 3 %vol/vol
Methylcyclohexane	108-87-2	1 - 2 %vol/vol
Pentane, 2,2,4-trimethyl- (Isooctane)	540-84-1	1 - 13 %vol/vol
Naphthalene	91-20-3	0.1 - 2 %vol/vol
Ethanol	64-17-5	0 - 10 %vol/vol
Methyl tert-butyl ether (MTBE)	1634-04-4	0 - 15 %vol/vol
Tertiary amyl methyl ether (TAME)	994-05-8	0 - 17 %vol/vol
Ethyl tert-butyl ether (ETBE)	637-92-3	0 - 18 %vol/vol

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES EYE AND SKIN IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS

IMMEDIATE HEALTH EFFECTS

Eye: Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

Cancer: Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains benzene, which has been classified as an A1 Group Confirmed Human Carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH).

See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FLAMMABLE PROPERTIES:

Flashpoint: (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)

Autoignition: > 280 °C (> 536 °F)

Flammability (Explosive) Limits (% by volume in air): Lower: 1.4 Upper: 7.6 (Typical)

EXTINGUISHING MEDIA: Dry Chemical, CO₂, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not store in open or unlabeled containers. Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Never siphon gasoline by mouth.

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	--	Skin A1
Butane	ACGIH	800 ppm (weight)	--	--	--
Cyclohexane	ACGIH	100 ppm (weight)	--	--	--
Ethanol	ACGIH	1000 ppm (weight)	--	--	A4
Ethyl benzene	ACGIH	100 ppm (weight)	125 ppm (weight)	--	A3
Ethyl tert-butyl ether (ETBE)	ACGIH	5 ppm (weight)	--	--	--
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	--	A3
Heptane	ACGIH	400 ppm (weight)	500 ppm (weight)	--	--
Hexane	ACGIH	50 ppm (weight)	--	--	Skin
Methyl tert-butyl ether (MTBE)	ACGIH	50 ppm (weight)	--	--	A3
Methyl tert-butyl ether (MTBE)	CVX	--	50 ppm	--	--
Methylcyclohexane	ACGIH	400 ppm (weight)	--	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin A4
Pentane, 2,2,4-trimethyl- (Isooctane)	ACGIH	300 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	ACGIH	20 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	CVX	--	50 ppm	--	--
Toluene (methylbenzene)	ACGIH	50 ppm (weight)	--	--	Skin A4
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	ACGIH	100 ppm (weight)	150 ppm (weight)	--	A4

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)

Vapor Density (Air = 1): 3 - 4 (Typical)

Boiling Point: 37.8°C (100°F) - 204.4°C (400°F) (Typical)

Solubility: Insoluble in water; miscible with most organic solvents.

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F) (Typical)

Viscosity: <1 SUS @ 37.8°C (100°F)

Evaporation Rate: No Data Available

Odor Threshold: No Data Available

Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.

Skin Irritation: For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.

Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.

Acute Dermal Toxicity: LD50: >3.75g/kg (rabbit).

Acute Oral Toxicity: LD50: >5 ml/kg (rat)

Acute Inhalation Toxicity: 4 hour(s) LD50: >20000mg/m3 (rat).

For additional information on the acute toxicity of the components, call the technical information center.

Subchronic Effects: Exposure of rats for 13 weeks (6 hr/day for 5 days/week) to the light ends of gasoline (up to 20,000 mg/m³) resulted in minimal responses of toxicity. There were no indications of neurotoxicity based morphological, functional and biochemical indices. There was also no evidence of immunotoxicity in the rats. However, when rats were exposed to gasoline vapor containing ethanol up to 20,000 mg/m³ there was evidence of both humoral immune suppression and mild astrogliosis.

Reproduction and Birth Defects: Exposure of rats to the light ends of gasoline at up to 20,000 mg/m³ had generally no impact upon reproductive abilities and did not cause birth defects.

Genetic Toxicity: Gasoline was not mutagenic, with or without activation, in the Ames assay (*Salmonella typhimurium*), *Saccharomyces cerevisiae*, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. Inhalation exposure of rats to the light ends of gasoline caused increased sister chromatid exchange in their peripheral white blood cells but did not cause an increase in micronucleated red blood cells in their bone marrow.

ADDITIONAL TOXICOLOGY INFORMATION:

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the ChevronTexaco Emergency Information Center (see Section 1 for phone numbers).

Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.

Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.

To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

96 hour(s) LC50: 8.3 mg/l (*Cyprinodon variegatus*)

96 hour(s) LC50: 1.8 mg/l (*Mysidopsis bahia*)

48 hour(s) LC50: 3.0 mg/l (*Daphnia magna*)

96 hour(s) LC50: 2.7 mg/l (*Oncorhynchus mykiss*)

This material is expected to be toxic to aquatic organisms. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

ENVIRONMENTAL FATE

This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylene and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261), Environment Canada, or other State, Provincial, and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: GASOLINE//3//UN1203//II

DOT Shipping Description: GASOLINE,3,UN1203,II

SECTION 15 REGULATORY INFORMATION**REGULATORY LISTS SEARCHED:**

01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B
35=WHMIS IDL

The following components of this material are found on the regulatory lists indicated.

Benzene	01-1, 35
Butane	35
Cyclohexane	35
Ethanol	01-1, 35
Ethyl benzene	01-2B, 35
Gasoline	01-2B
Heptane	35
Hexane	35
Methylcyclohexane	35
Naphthalene	01-2B, 35
Pentane, 2,2,4-trimethyl- (Isooctane)	35
Toluene (methylbenzene)	35
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	35

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia), ENCS (Japan), IECSC (China), PICCS (Philippines).

WHMIS CLASSIFICATION:

Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material -
Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material -
Skin or Eye Irritation

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: 08/30/2005

SECTION 16 OTHER INFORMATION

Additional Product Number(s): CPS201023, CPS201054, CPS201055, CPS201075, CPS201090, CPS201105, CPS201106, CPS201120, CPS201121, CPS201122, CPS201126, CPS201128, CPS201131, CPS201136, CPS201141, CPS201142, CPS201148, CPS201153, CPS201158, CPS201161, CPS201162, CPS201168, CPS201181, CPS201185, CPS201186, CPS201188, CPS201216, CPS201217, CPS201218, CPS201236,

CPS201237, CPS201238, CPS201266, CPS201267, CPS201268, CPS201277, CPS201278, CPS201279, CPS201286, CPS201287, CPS201289, CPS201296, CPS201297, CPS201298, CPS201849, CPS201850, CPS201855, CPS201856, CPS201857, CPS204000, CPS204001, CPS204002, CPS204003, CPS204010, CPS204011, CPS204022, CPS204023, CPS204046, CPS204047, CPS204070, CPS204071, CPS204088, CPS204089, CPS204104, CPS204105, CPS204116, CPS204117, CPS204140, CPS204141, CPS204164, CPS204165, CPS204188, CPS204189, CPS204200, CPS204201, CPS204212, CPS204213, CPS204224, CPS204225, CPS204248, CPS204249, CPS204272, CPS204273, CPS204290, CPS204291, CPS204322, CPS204323, CPS204324, CPS204350, CPS204352, CPS204354, CPS204356, CPS204358, CPS204359, CPS204364, CPS204365, CPS204370, CPS204371, CPS204376, CPS204377, CPS204382, CPS204383, CPS204388, CPS204389, CPS204394, CPS204395, CPS204400, CPS204401, CPS204406, CPS204407, CPS204412, CPS204413, CPS204418, CPS204419, CPS204424, CPS204425, CPS204430, CPS204431, CPS204436, CPS204437, CPS204442, CPS204446, CPS204450, CPS204454, CPS204458, CPS204462, CPS204466, CPS204467, CPS204484, CPS204485, CPS204502, CPS204503, CPS204520, CPS204521, CPS204538, CPS204539, CPS204556, CPS204557, CPS204574, CPS204575, CPS204592, CPS204593, CPS204610, CPS204611, CPS204628, CPS204629, CPS204646, CPS204647, CPS204664, CPS204665, CPS204682, CPS204690, CPS204691, CPS204696, CPS204697, CPS204702, CPS204703, CPS204708, CPS204709, CPS204721, CPS204722, CPS204727, CPS204728, CPS241765

REVISION STATEMENT: This is a new Material Safety Data Sheet.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.